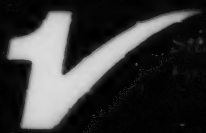
1989-1990 School Year Results

Annual Report

Diploma Examinations Program



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ERRATA

p. 3 The first footnote should read:

*The acceptable standard is 50% or higher.

p. 16 In Figure 3-2, the Females Standard of Excellence portion of the bar graph for Français 30 should extend to the 22.2 point.

p. 17 In Table 3-1, under the column heading Diploma Examination Mark, the percentage distribution for the letter grade A (80-100%) should read:

English 30	Male - 10.2	Female - 15.2
English 33	Male - 4.9	Female - 7.0
Social Studies 30	Male - 17.2	Female - 11.9

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ANNUAL REPORT
1989-90 SCHOOL YEAR

MESSAGE FROM THE DIRECTOR

On behalf of the Student Evaluation Branch, I am pleased to present the first *Annual Report: Diploma Examinations Program*. The report contains the results achieved by students who wrote diploma examinations during the 1989-90 school year.

The purpose of this report and of all of our "group results" reports is to inform educators and the public about student achievement in relation to provincial standards. If used appropriately, this information is helpful in considering the effectiveness of both provincial and local policies and programs.

Provincial results for the 1989-90 school year show that overall, student performance remains at a very satisfactory level. The provincial pattern of results for this school year is consistent with that of previous years, and the percentage of students achieving the acceptable standard and the standard of excellence remains high. However, not as many students as expected met the acceptable standard in Mathematics 30, Chemistry 30 and Biology 30 in June. Fluctuations in the student population may account for this, as every effort has been made to keep standards at a high level.

This *Annual Report* provides information about how well students across Alberta did in diploma examination courses this past year. Results for the January, June and August administrations were combined in each course. This new report replaces the *Provincial Report* released after January and June administrations in previous years.

Graphic representations of each jurisdiction's results, similar to the data presented on pages 7 to 13 of this report, have been prepared as well. These reports were mailed directly to each superintendent.

Also new this year is the *Examiners' Report* on the diploma examinations. This report describes examination results for English 30, English 33, Social Studies 30, Français 30, Mathematics 30, Biology 30, Chemistry 30 and Physics 30. Intended primarily for educators, these results were sent to school administrators and teachers after the January and June administrations of the examinations. Each report can be found in the appendices.

As in previous years, statistical reports showing school and jurisdiction results were provided to superintendents and principals following the January and June examination administrations.

We at Student Evaluation try to make reports such as this one as readable and informative as possible. Please let us know how well we are doing in this respect by completing the questionnaire at the end of this document.

Finally, I wish to gratefully acknowledge the special contribution made by those teachers, principals and superintendents who shared their experience and expertise with Student Evaluation during the rigorous examination development and marking processes. Their involvement has been invaluable in helping us once again to achieve our goal of fair and equitable evaluation of student achievement through diploma examinations.

F Horvath

Frank G. Horvath, Director

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SECTION 1
THE GRADE 12 DIPLOMA EXAMINATIONS PROGRAM

INTRODUCTION

The purpose of the diploma examination program is to maintain standards of performance, certify the level of academic achievement of individual students and, in the interest of maintaining student equity, provide province-wide measures of students' achievement. The program is designed to support evaluation conducted by teachers in the classroom and, when all factors that affect student performance are considered, the collective results can serve as important imformation in program monitoring. The diploma examination results indicate achievement of core objectives in accordance with provincial standards. It is limited to the assessment of those objectives that can be evaluated in a limited time with a paper and pencil test.

All students wishing to receive an Alberta high school diploma are required to write a diploma examination in either English 30 or English 33.

The Diploma Examinations Program consists of course-specific examinations that are based on the prescribed *Programs of Studies for Senior High Schools*. Examinations are provided in the following Grade 12 courses:

- English 30
- English 33
- Social Studies 30
- Français 30
- Mathematics 30
- Biology 30
- Chemistry 30
- Physics 30

The Diploma Examination development process is described in Appendix B.

Diploma examinations in Social Studies 30, Mathematics 30, Biology 30, Chemistry 30 and Physics 30 are available in French translation upon request.

The diploma examinations are administered three times each year – in January, June and August.

Further information about the Grade 12 Diploma Examinations Program is available in the *General Information Bulletin: Diploma Examinations Program*, in the "Information for Students" brochure and in the examination information bulletins published annually for each subject.

Awarding of Course Credits

To obtain credit in any high school course, students must earn a final mark of 50% or better. To obtain credit in a Grade 12 diploma examination course, students must write the appropriate diploma examination and attain a final blended mark of 50% or higher. The final blended mark is made up of 50% of the mark awarded by the school and 50% of the diploma examination mark.

For example, a Physics 30 student might receive a mark of 45% from the school and a mark of 57% on the diploma examination. This student would earn credit for Physics 30 because the final blended mark would be 51%, the average of the school-awarded and diploma examination marks.

For students with mature status who do not have a school mark or who have a school mark lower than the examination mark, the examination mark is deemed to be the final mark.

Diploma Examination Reports

In addition to this *Annual Provincial Report*, three other reports are produced to aid in the communication and use of the diploma examination results. The list below describes the general contents and purpose of each of the four diploma examination reports.

1. Distribution of Student Marks in Diploma Examination Courses Report

This three-page report (see Appendix A) is produced approximately three weeks following each administration date. It is available upon request to the general public and the media. Copies are sent to schools, jurisdictions and other educational institutions throughout Alberta. The purpose of the report is to make public the provincial results of each examination.

The report has two parts. The first part shows the percentage of A's, B's, C's and F's for each course for the school-awarded mark, the diploma examination mark and the final blended mark. Parallel information for the final blended mark of the previous year is also shown. The second part shows the percentages of students achieving the acceptable standard and the standard of excellence for each course.

2. School and Jurisdiction Statistical Reports (one for each course)

Alberta Education also provides school boards with school and jurisdiction statistical reports. Copies of these reports are mailed to superintendents and principals but are not available to the general public unless released by superintendents.

These reports are statistical in nature, containing group results for a particular school or jurisdiction, with detailed results at the question level. The purpose is to enable school administrators and teachers to examine and evaluate the effectiveness of their educational programs in each course and to identify areas where students did well and where weak performance exists. Educators are encouraged to study these reports carefully and to make good use of the valuable information provided.

The information in these reports is factual regarding what happened; the interpretation of this information involves consideration of the many factors and variables that contribute to achievement. Please refer to Appendix C for more detailed information regarding the interpretation and use of results.

The reports are not intended to be used as the basis for evaluating teacher performance or for comparing performance between or among schools. Administrators in each jurisdiction should apply their locally developed teacher, school and system evaluation policies to the tasks of evaluating teacher or school performance.

3. Examiners' Reports (one for each course)

Mailed at the same time as the school and jurisdiction statistical reports, the Examiners' Reports contain summaries of provincial results together with examiners' comments. These reports, prepared primarily for teachers, interpret results in relation to course expectations. They are sent to schools and jurisdictions after the January and June administrations and are available to the public upon request. Copies of these reports are included in Appendices D and E.

4. Annual Provincial Report

Produced once each year, this report provides summary provincial information regarding the results of the diploma examinations for the entire school year. Examination results for January, June and August are combined.

The statistics in this report are based on the students' results on all diploma examinations written during the school year and on corresponding school marks. (The population subgroups information is an exception.) If a student wrote more than one examination in the same course, only the highest score was used.

SECTION 2
SUMMARY OF RESULTS

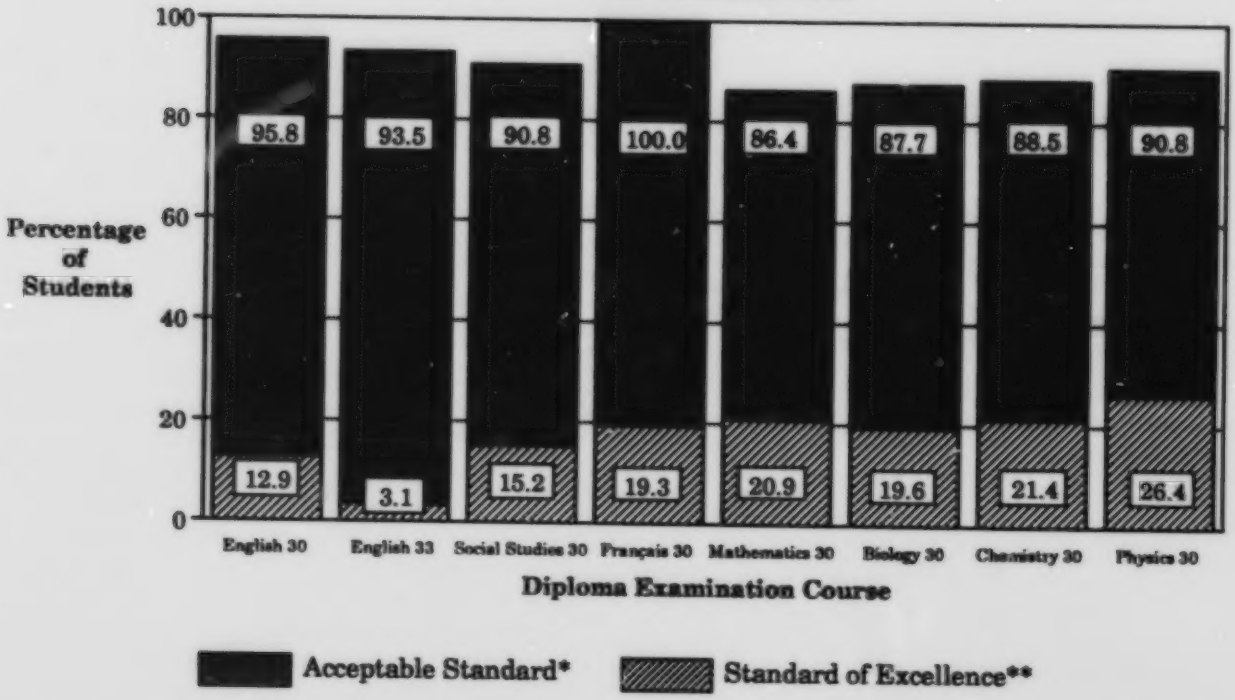
Achievement of Standards

During the 1989-90 school year, over 80% of students achieved the acceptable standard in all course areas. In five courses (English 30 English 33, Social Studies 30, Français 30 and Physics 30), more than 90% of students achieved the acceptable standard.

Generally, a high percentage of students also achieved the standard of excellence; for example, over 26.4% of Physics 30 students achieved this standard. However, only 3.1% of English 33 students achieved the standard of excellence.

In Alberta, courses are selected by students according to their own needs, aspirations, and expectations. This may account for much of the differential achievement between courses. For this reason, expectations of the percentage of students who achieved the acceptable standard or the standard of excellence are best interpreted within the context of local policies and conditions.

Figure 2-1
Percentage of Students Achieving Acceptable Standard and Standard of Excellence (Blended Mark)
1989-90 School Year

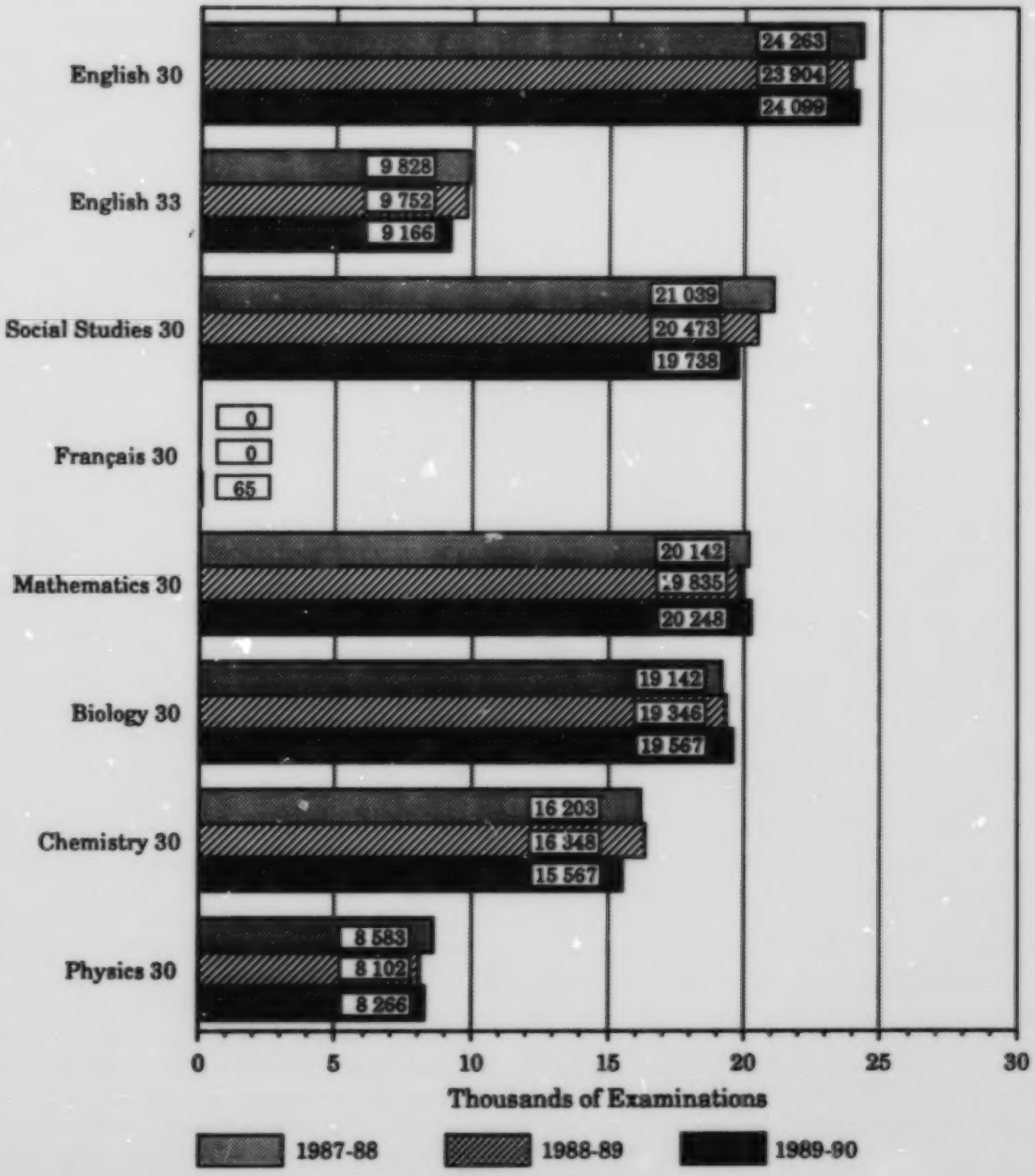


* The acceptable standard is 50% to 79%.
** The standard of excellence is 80% to 100%.

Number of Examinations Written

The number of students writing English 33 and Social Studies 30 has clearly declined over the last three years, while the number writing Biology 30 has increased. The number writing Chemistry 30 declined substantially last year but had increased the previous year. The numbers for other course areas are relatively unchanged.

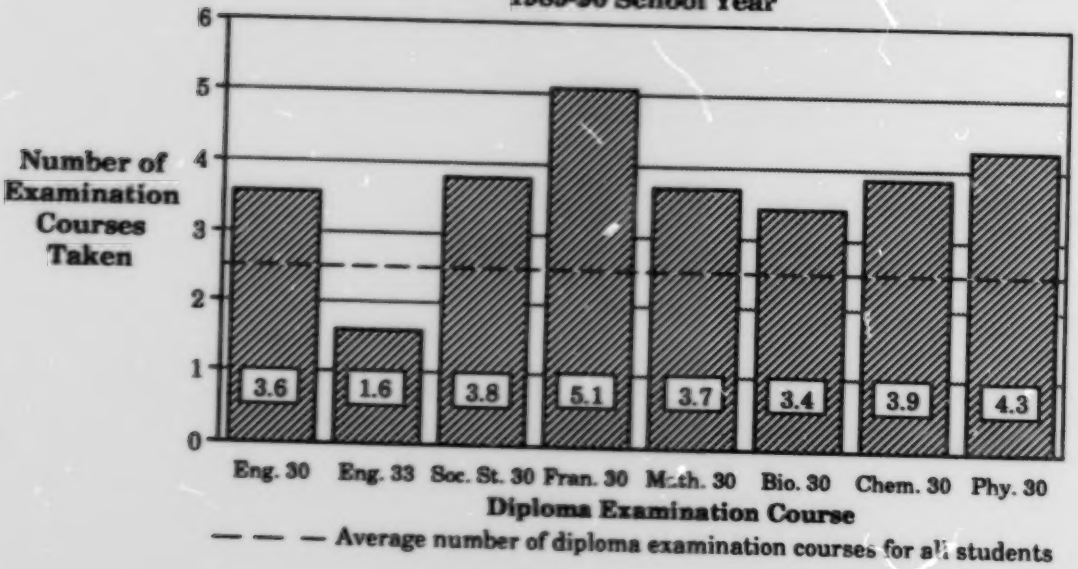
Figure 2-2
Number of Students Writing Examinations in Each Course
1987-88, 1988-89 and 1989-90 School Years



Average Number of Diploma Examination Courses Taken

The average number of diploma examination courses taken by students writing the English 30 examination during the 1989-90 school year is approximately 3.6, while the average for students writing the English 33 examination is 1.6. Clearly, students writing the English 33 diploma examinations tend to enrol in fewer diploma examination courses than do students writing English 30. Note especially that students writing the Français 30 examination average more than five diploma examination courses per student per year.

Figure 2-3
Average Number of Diploma Examination Courses Taken by Students in Each Subject
1989-90 School Year



Distribution of Letter Grades

The distribution of letter grades for each course is shown in figures 2-4 to 2-19. An 'A' represents a mark of 80% or higher. A 'B' indicates a mark of 65% to 79%. A 'C' ranges from 50% to 64%. An 'F' represents a mark of less than 50%, or a failure.

There are two graphs for each course. The first shows the distribution of letter grades for final blended marks over the last three years. In English 30, for example, note that the proportion of A's and B's has increased over time, while the proportion of C's has clearly decreased.

The second of the two graphs shows the distribution of letter grades for the school-awarded mark, the diploma examination mark and the final blended mark. For example, the number of F's awarded to English 33 students for the final blended mark is much lower than the number of F's awarded for either the school-awarded mark or the diploma examination mark. One reason for this is that no blended marks of 48% or 49% are awarded. If the average of the school-awarded mark and the diploma examination mark is 48% or 49%, the student is automatically given 50% as a final blended mark.

Figure 2-4
English 30 Letter Grades for Final Blended Marks
Three School Years

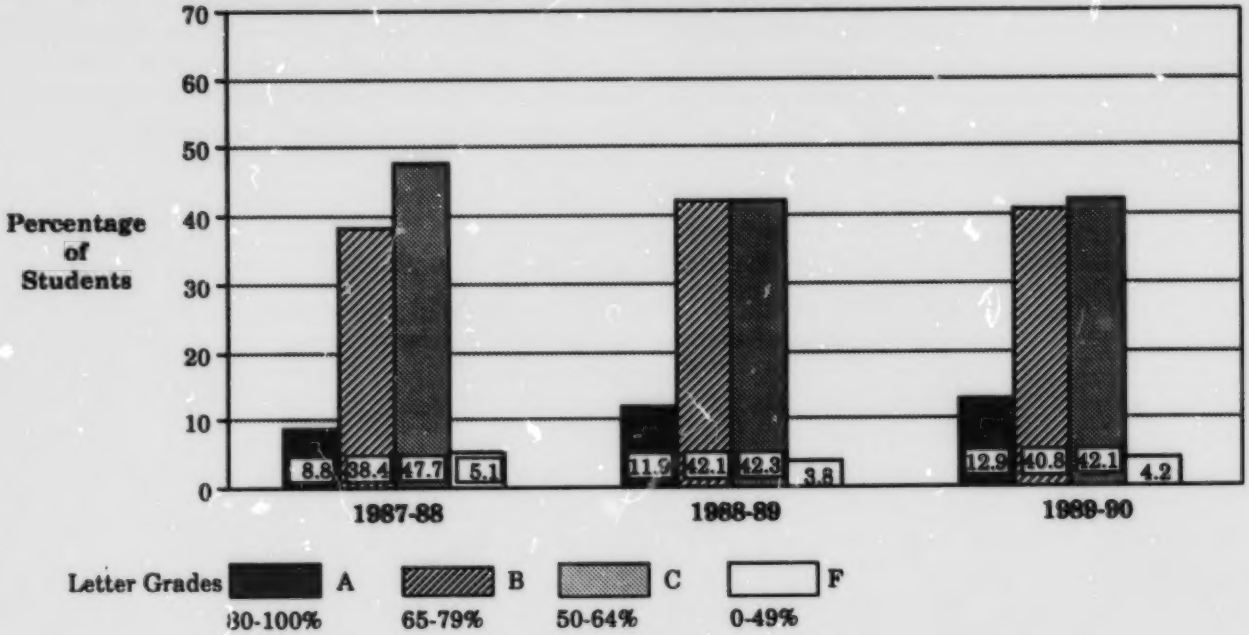


Figure 2-5
English 30 Letter Grades for School-Awarded,
Diploma Examination and Final Blended Marks
1989-90 School Year

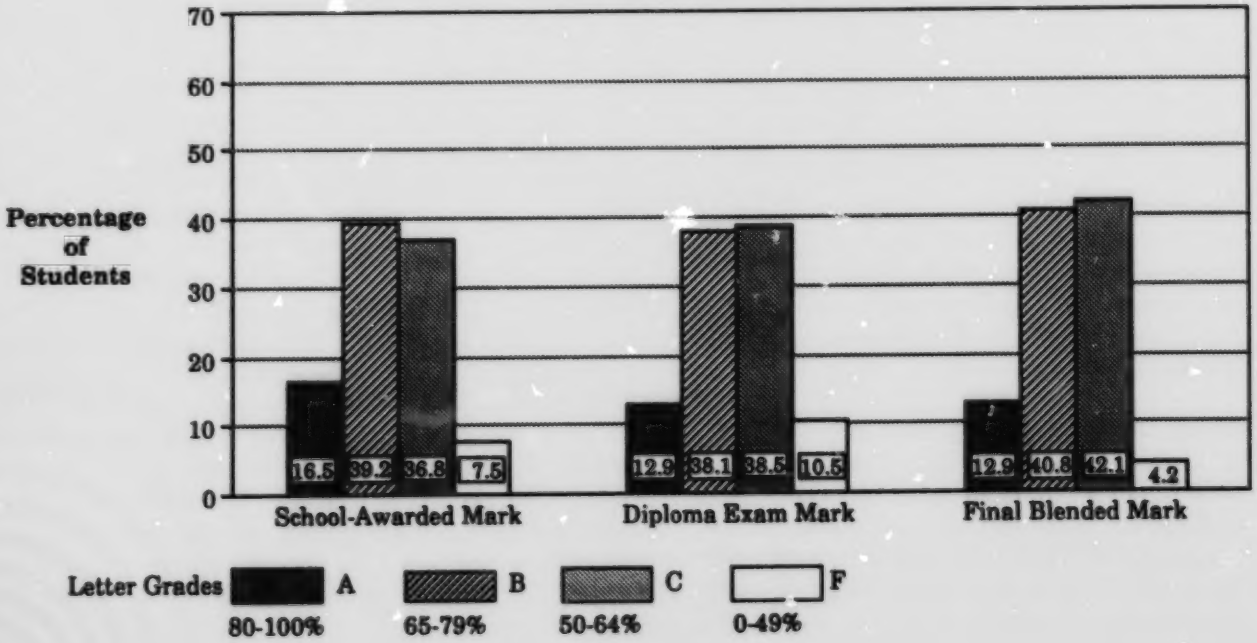


Figure 2-6
English 33 Letter Grades for Final Blended Marks
Three School Years

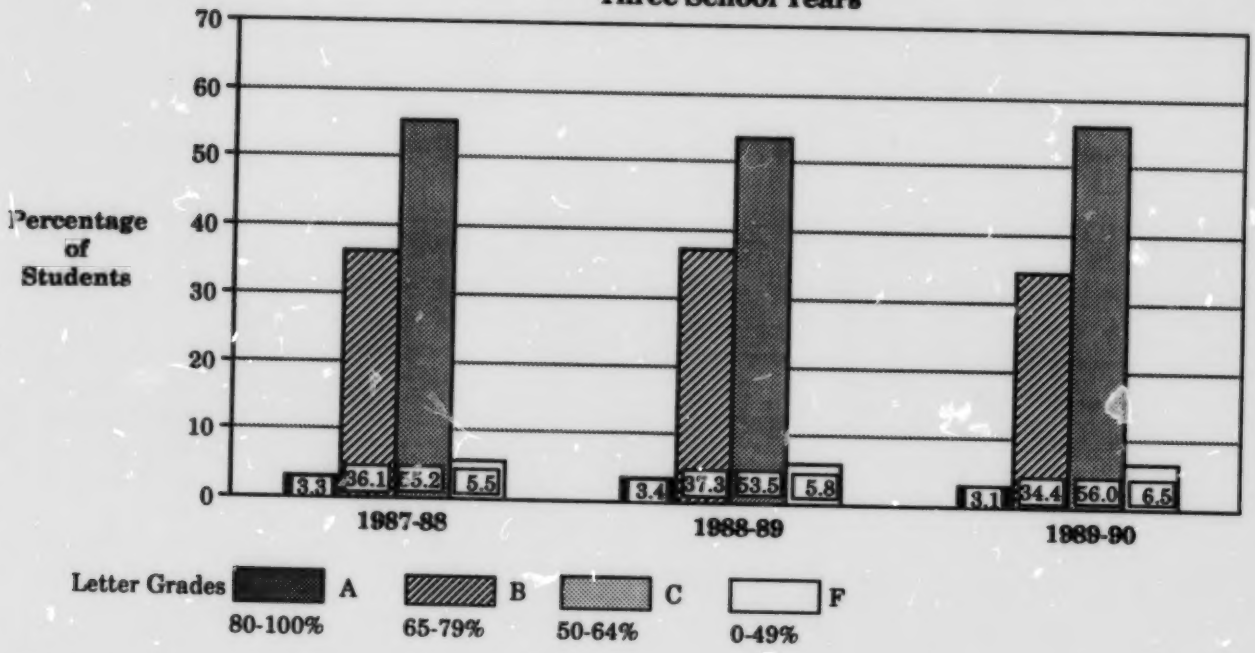


Figure 2-7
English 33 Letter Grades for School-Awarded,
Diploma Examination and Final Blended Marks
1989-90 School Year

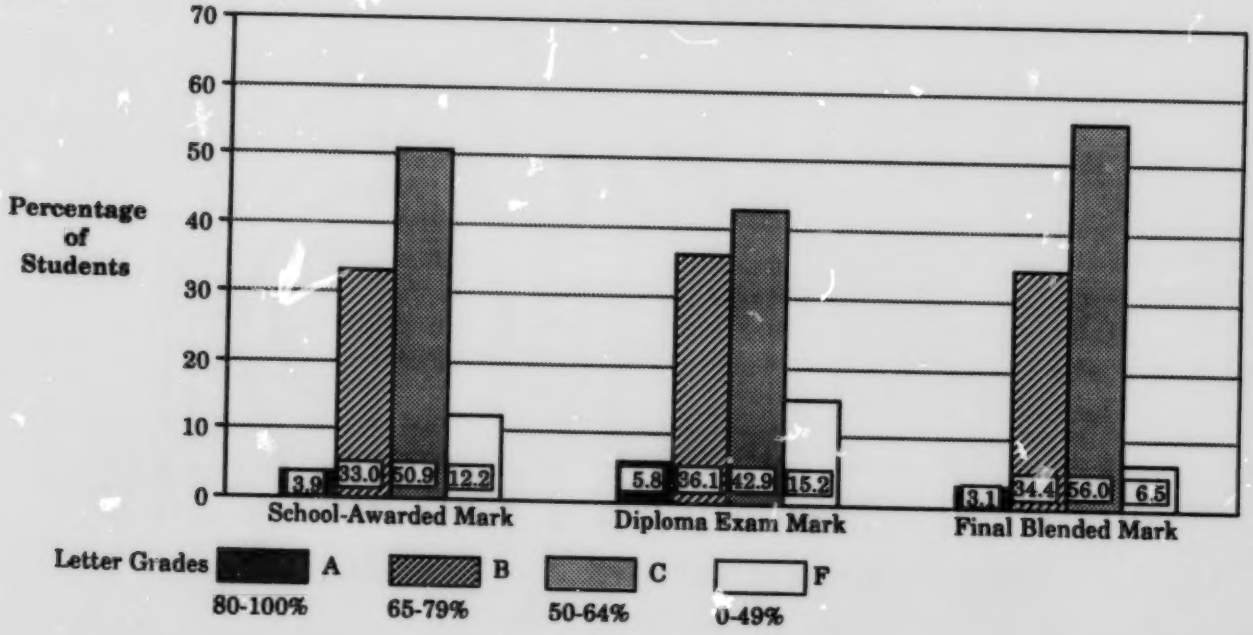


Figure 2-8
Social Studies 30 Letter Grades for Final Blended Marks
Three School Years

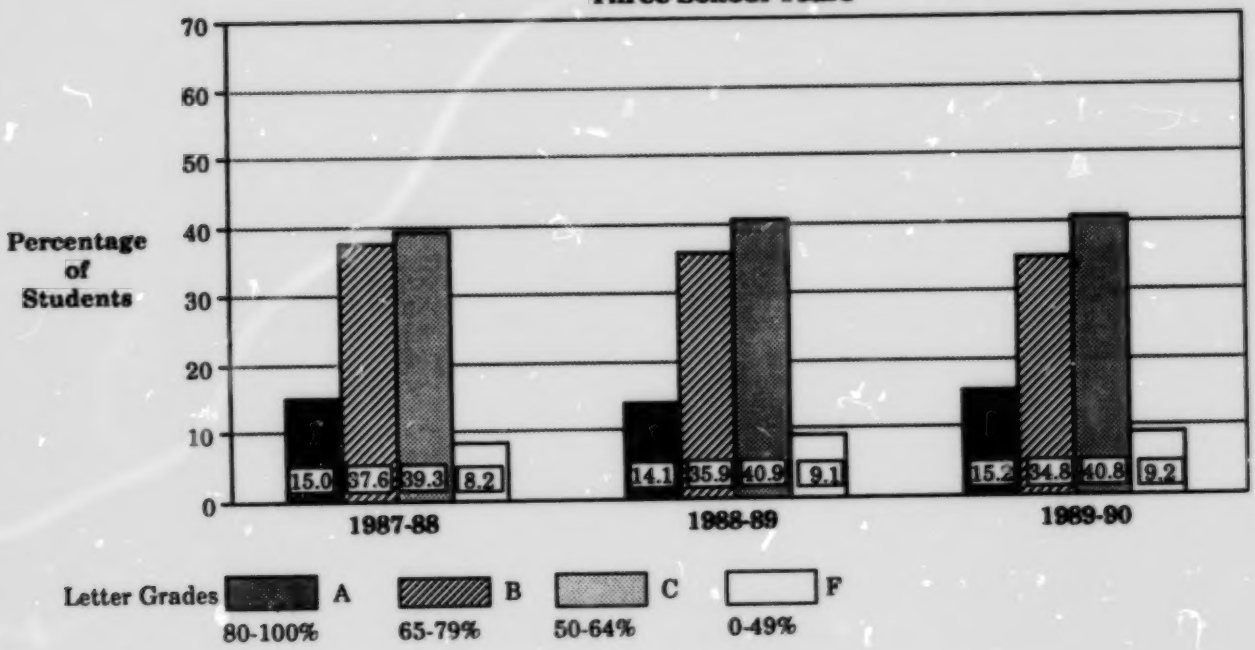


Figure 2-9
Social Studies 30 Letter Grades for School-Awarded, Diploma Examination and Final Blended Marks
1989-90 School Year

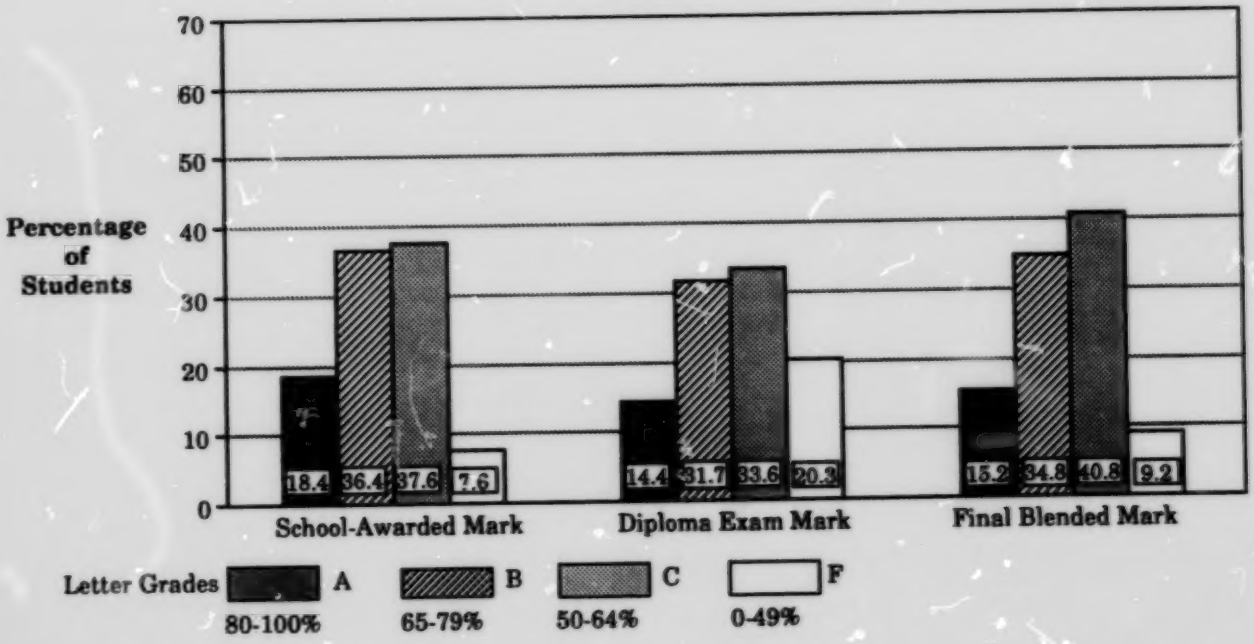


Figure 2-10
Français 30 Letter Grades for Final Blended Marks
Three School Years

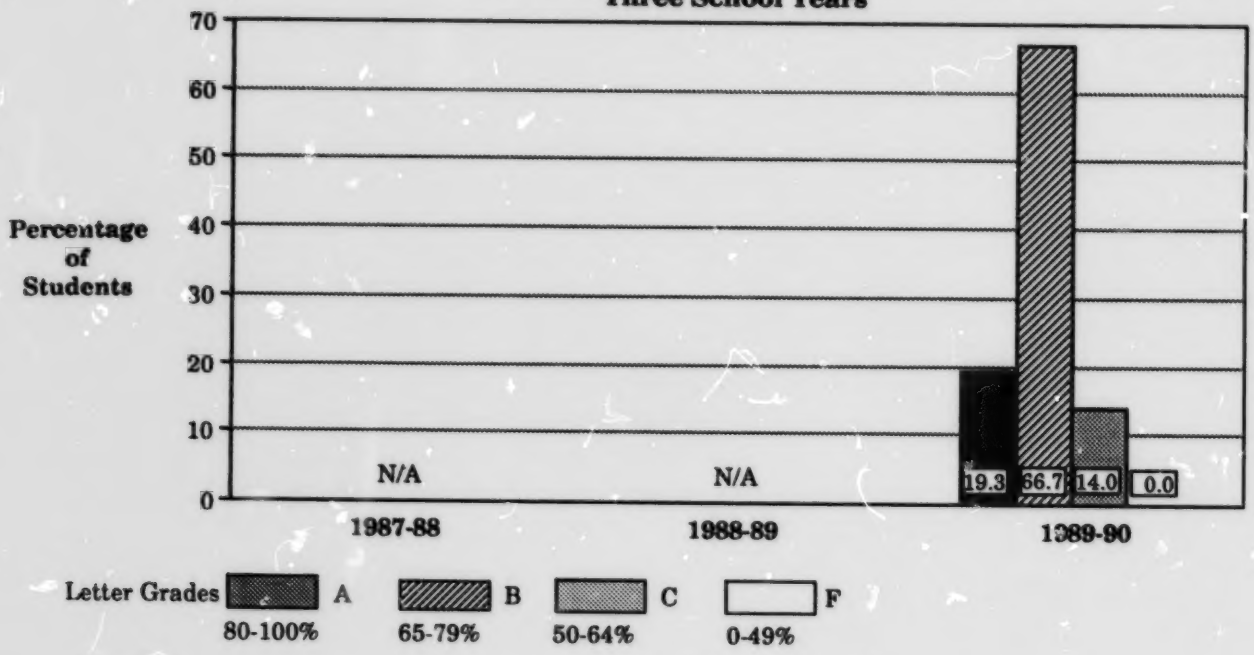


Figure 2-11
Français 30 Letter Grades for School-Awarded, Diploma Examination and Final Blended Marks
1989-90 School Year

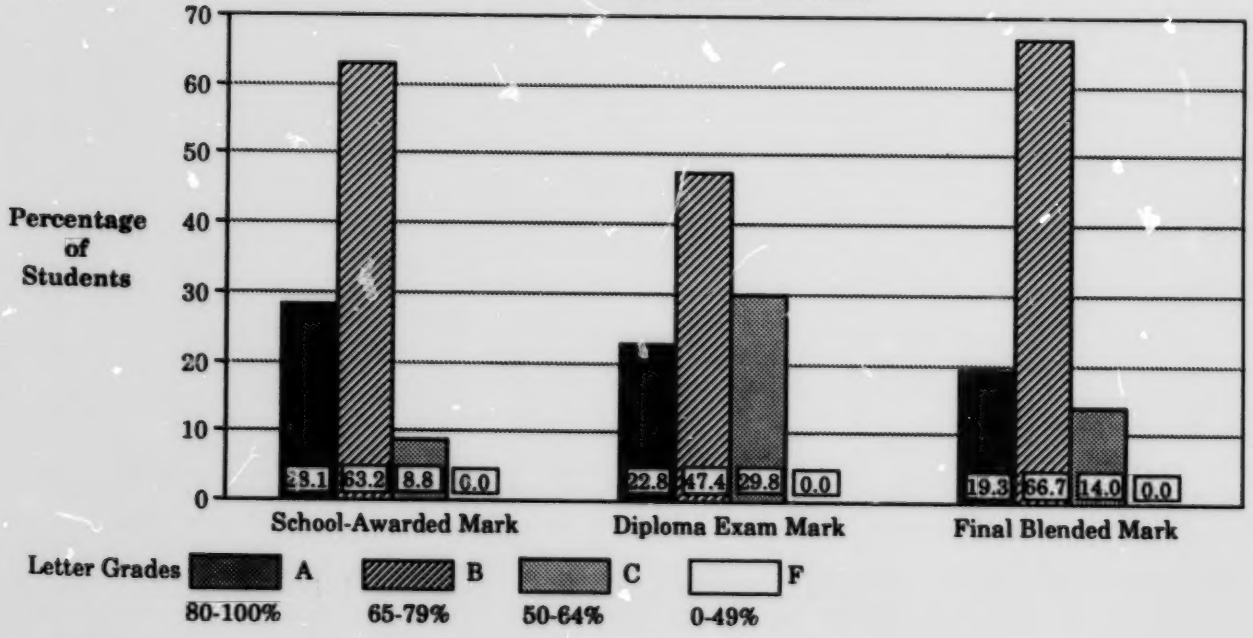


Figure 2-12
Mathematics 30 Letter Grades for Final Blended Marks
Three School Years

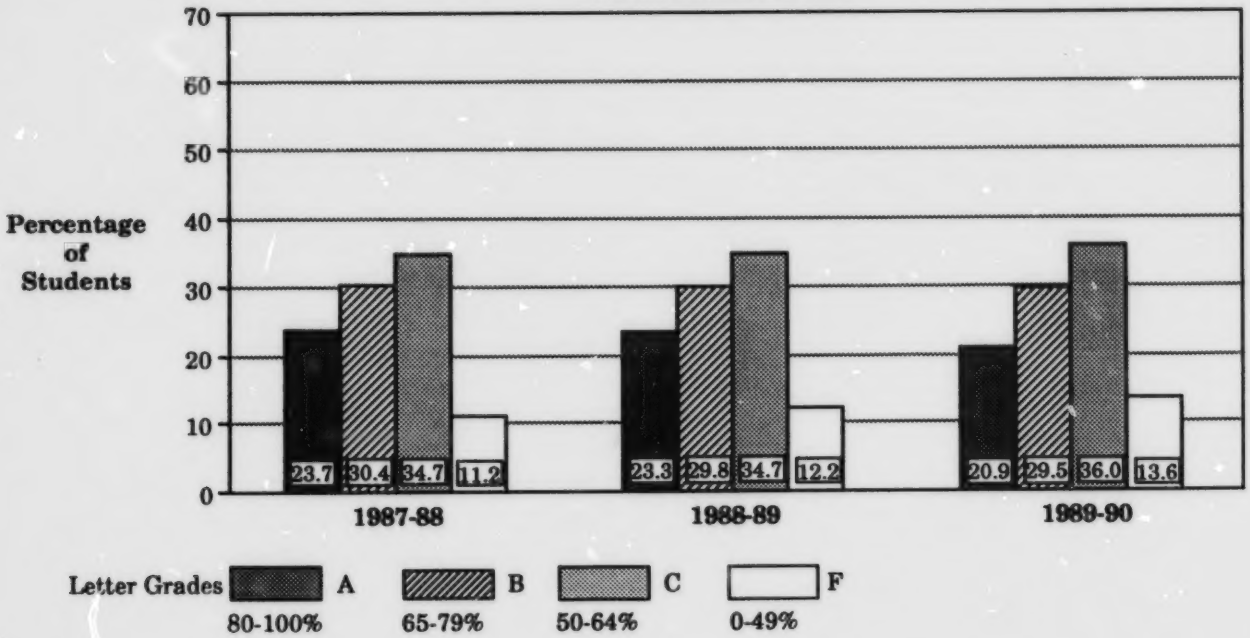


Figure 2-13
Mathematics 30 Letter Grades for School-Awarded,
Diploma Examination and Final Blended Marks
1989-90 School Year

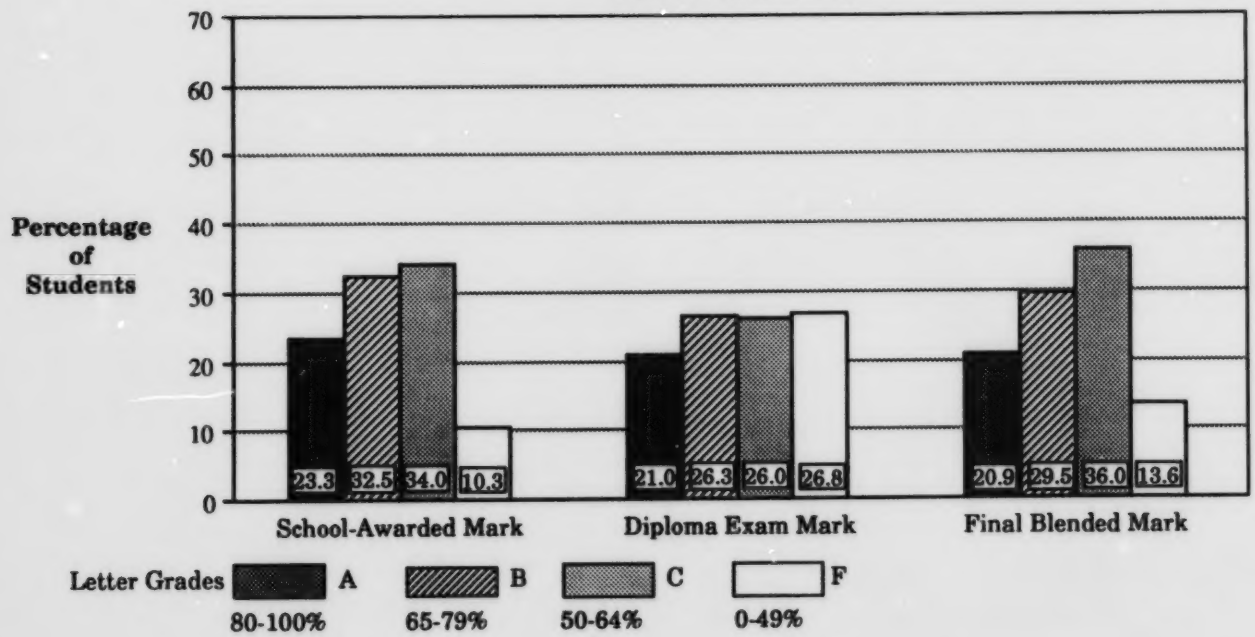


Figure 2-14
Biology 30 Letter Grades for Final Blended Marks
Three School Years

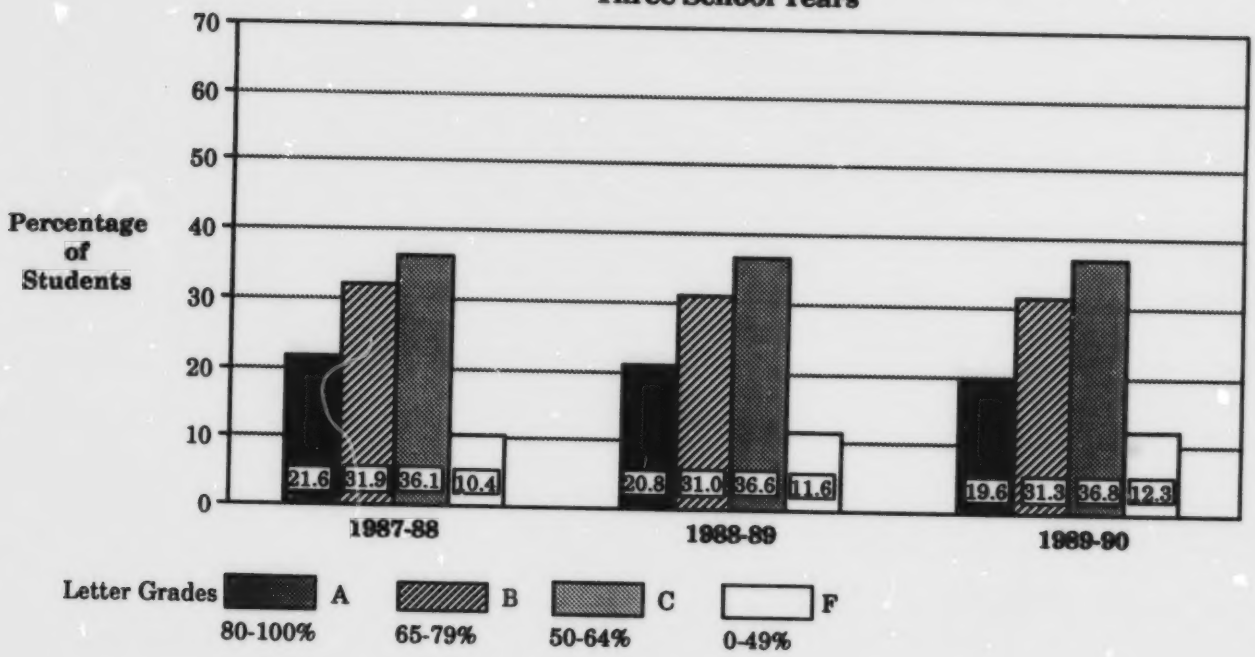


Figure 2-15
Biology 30 Letter Grades for School-Awarded,
Diploma Examination and Final Blended Marks
1989-90 School Year

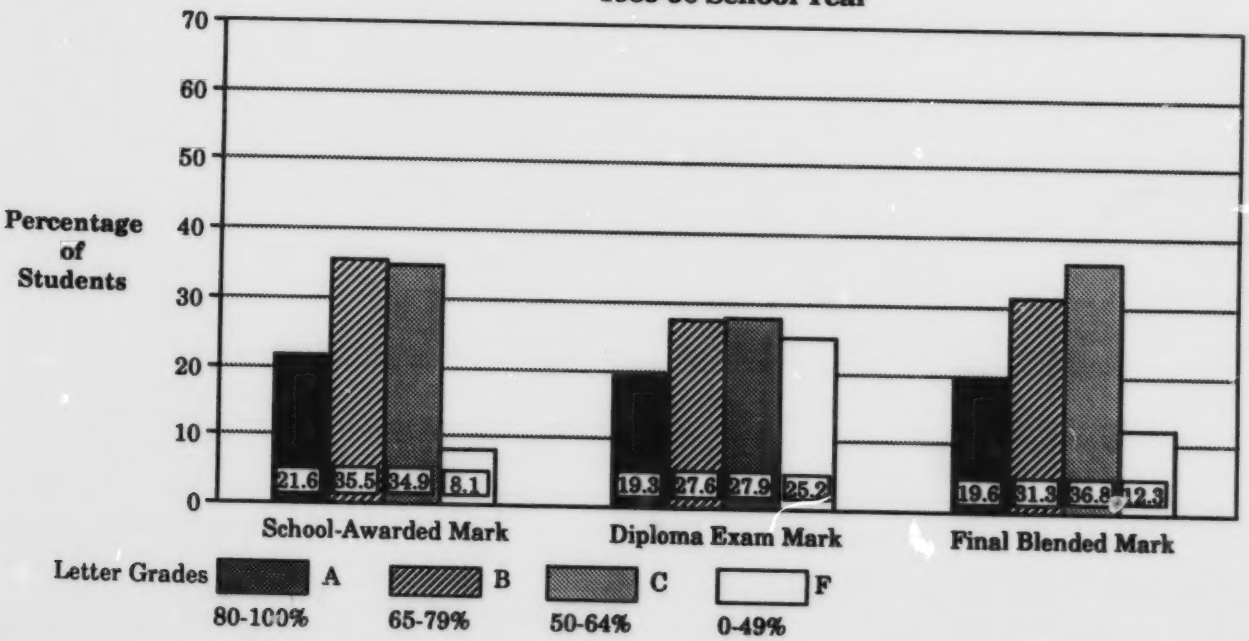


Figure 2-16
Chemistry 30 Letter Grades for Final Blended Marks
Three School Years

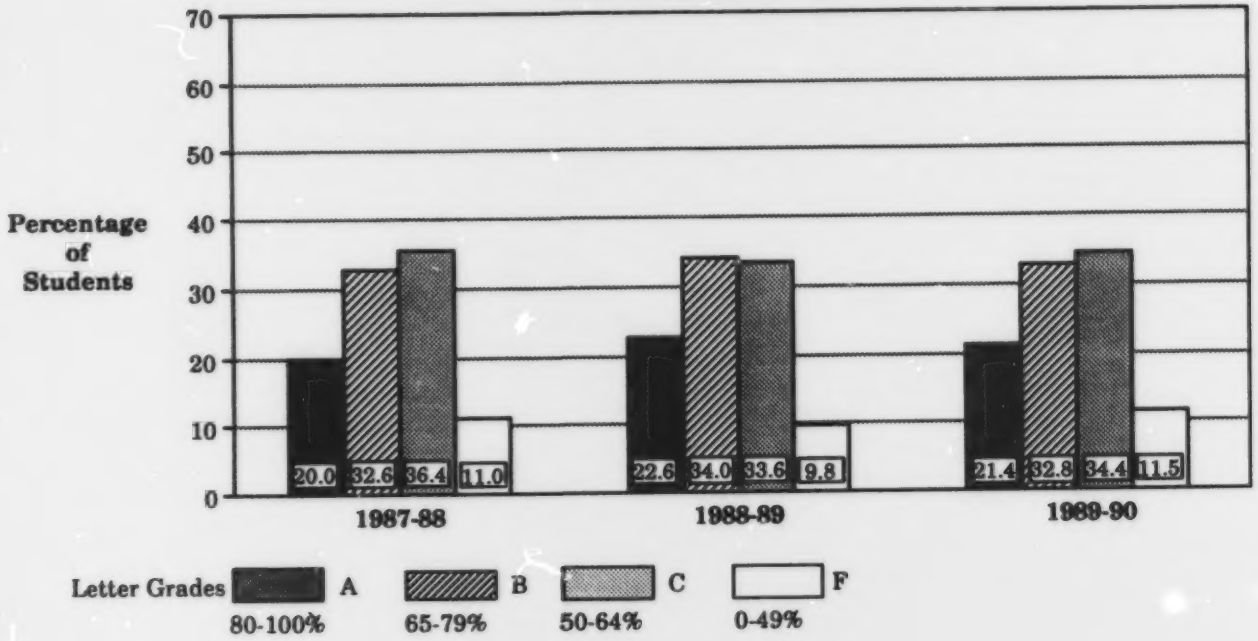


Figure 2-17
Chemistry 30 Letter Grades for School-Awarded, Diploma Examination and Final Blended Marks
1989-90 School Year

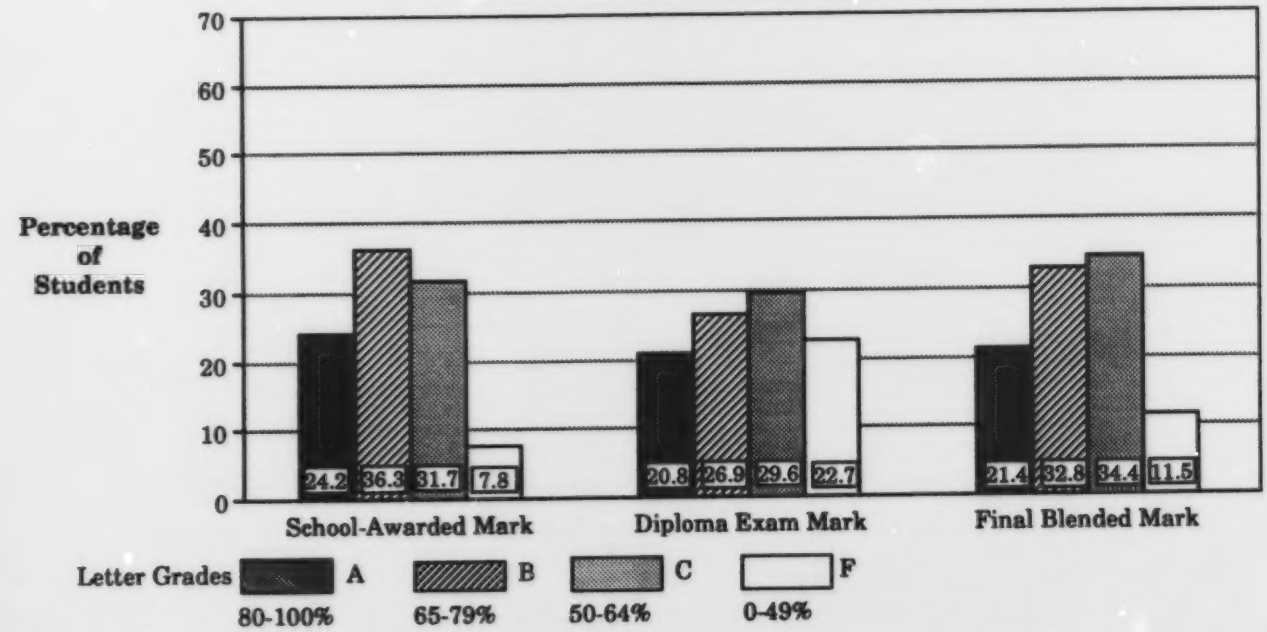


Figure 2-18
Physics 30 Letter Grades for Final Blended Marks
Three School Years

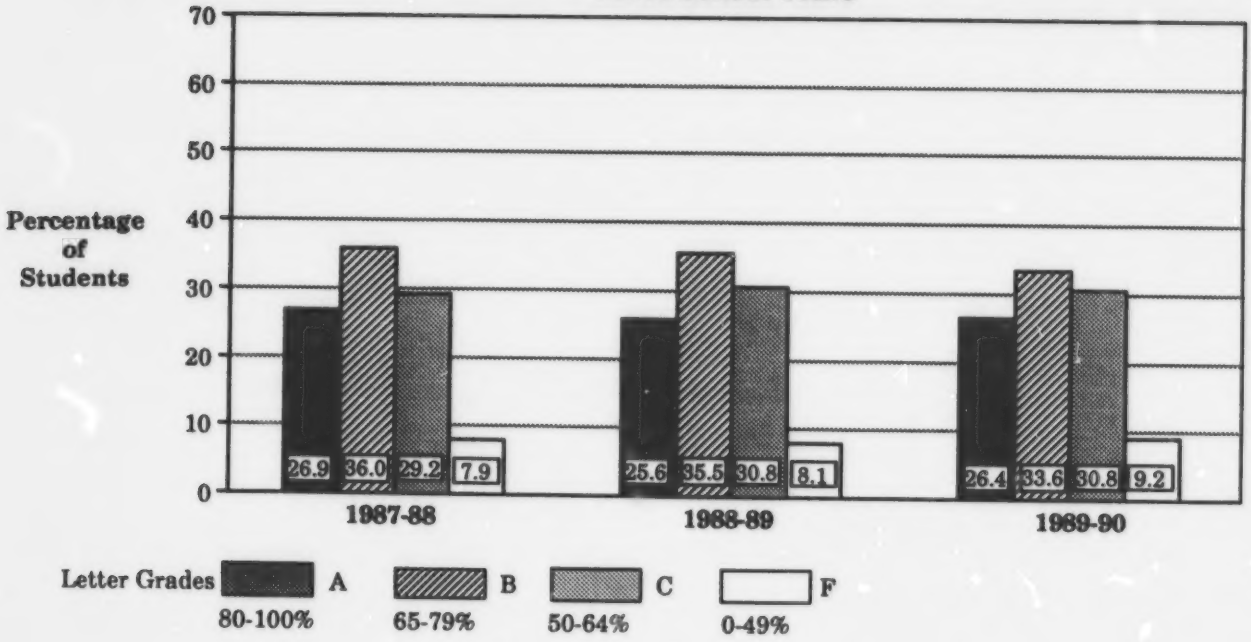
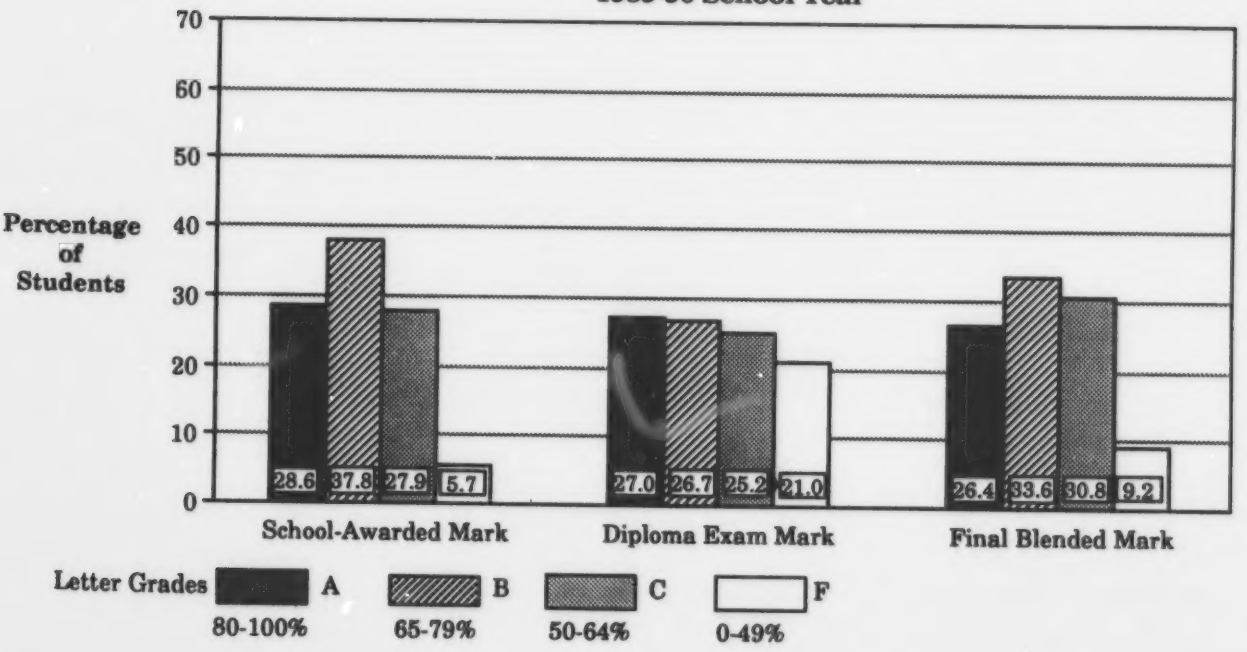


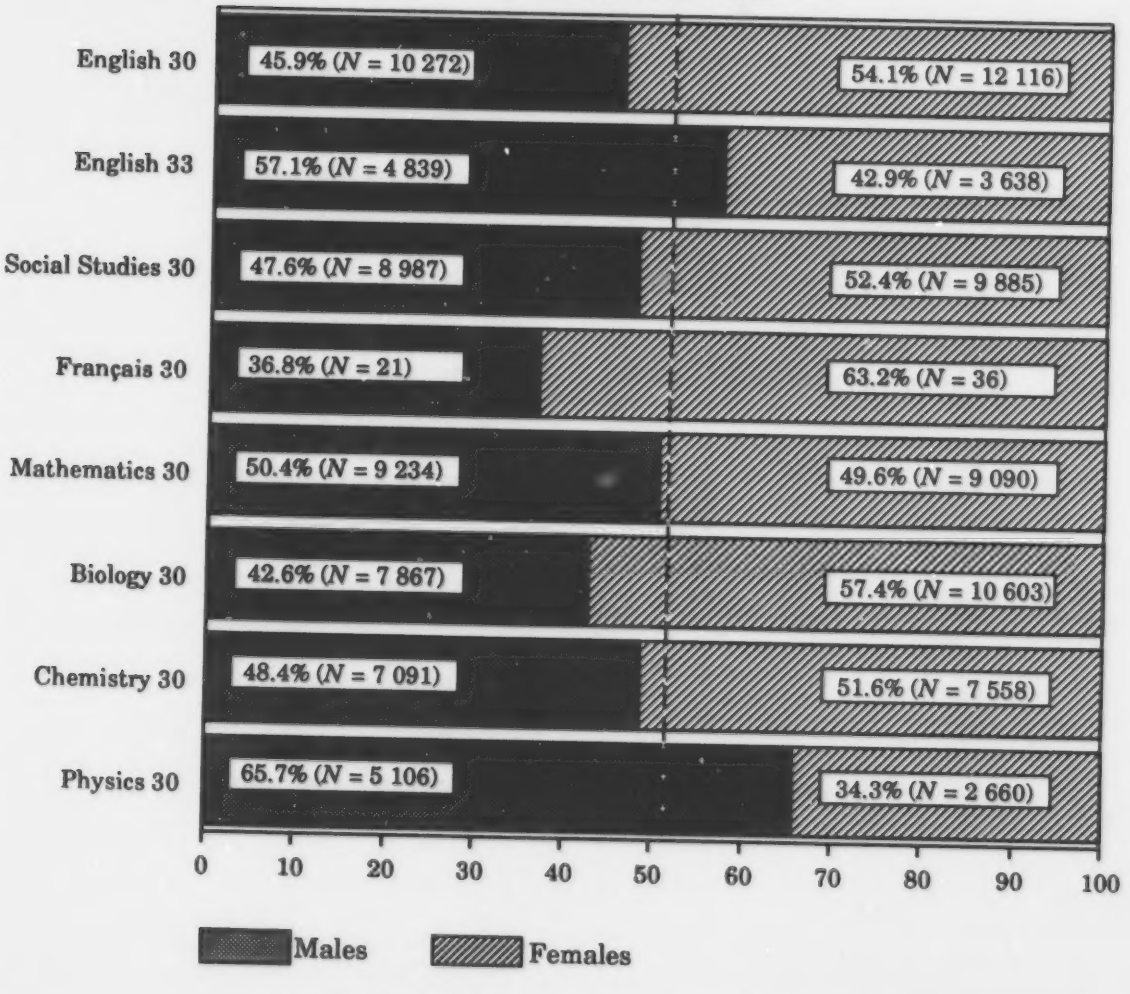
Figure 2-19
Physics 30 Letter Grades for School-Awarded,
Diploma Examination and Final Blended Marks
1989-90 School Year



SECTION 3
STUDENT RESULTS BY GENDER

This section of the report is intended to help educators consider the results achieved by males and females in Grade 12 diploma examination courses.

Figure 3-1
Ratio of Males to Females Writing Diploma Examinations
1989-90 School Year



— — — The vertical dashed line shows the ratio of males and females registered in Grade 12 on September 30, 1989.

Figure 3-2
Percentage of Students Achieving Acceptable Standard and Standard of Excellence (Blended Mark) 1989-1990 School Year

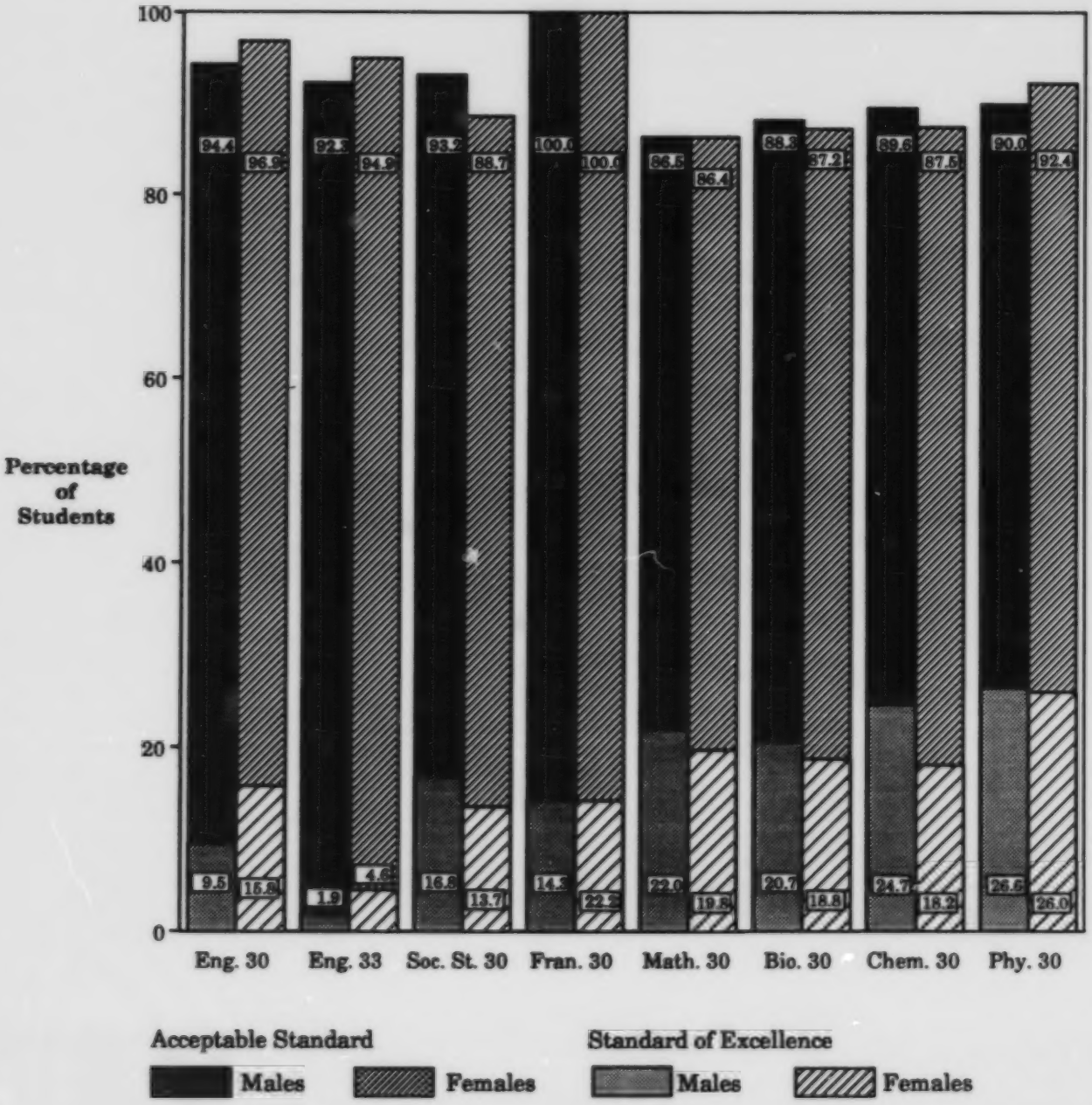


Table 3-1
Provincial Percentage Distribution of A, B, C and F Grades, Averages and Standard Deviations* of Scores
1989-90 School Year

Letter Grade	School-Awarded Mark			Diploma Examination Mark			Final Blended Mark		
	Total	Male	Female	Total	Male	Female	Total	Male	Female
English 30									
A (80-100%)	16.5	11.8	20.5	12.9	40.2	59.8	12.9	9.5	15.8
B (65-79%)	39.2	36.0	41.8	38.1	36.6	39.3	40.8	38.1	43.1
C (50-64%)	36.8	42.0	32.4	38.5	41.6	35.9	42.1	46.9	38.0
F (0-49%)	7.5	10.1	5.3	10.5	11.6	9.5	4.2	5.6	3.1
Average (%)	66.0	63.7	68.0	66.0	63.7	66.0	66.0	64.3	67.5
Standard Deviation* (%)	12.4	12.4	12.1	12.8	12.0	12.5	11.2	11.0	11.2
English 33									
A (80-100%)	3.9	2.2	6.1	5.8	41.2	58.8	3.1	1.9	4.6
B (65-79%)	33.0	27.4	40.3	36.1	35.1	37.5	34.4	29.9	40.4
C (50-64%)	50.9	54.8	45.7	42.9	44.3	41.0	56.0	60.5	49.9
F (0-49%)	12.2	15.5	7.9	15.2	15.7	14.5	6.5	7.7	5.1
Average (%)	60.6	58.6	63.2	61.7	61.2	62.4	61.6	60.3	63.3
Standard Deviation (%)	10.9	10.6	10.7	11.7	11.5	11.9	9.5	9.1	9.7
Social Studies 30									
A (80-100%)	18.4	18.5	18.4	14.4	59.1	40.9	15.2	16.8	13.7
B (65-79%)	36.4	37.0	35.8	31.7	35.5	28.2	34.8	37.5	32.5
C (50-64%)	37.6	37.1	38.1	33.6	32.6	34.5	40.8	38.9	42.5
F (0-49%)	7.6	7.4	7.7	20.3	14.7	25.4	9.2	6.8	11.3
Average (%)	66.3	66.5	66.1	62.7	65.1	60.4	64.8	66.2	63.6
Standard Deviation (%)	12.7	12.6	12.7	14.8	14.2	15.0	13.0	12.6	13.1

*Standard deviation is an indication of the amount of variation in a distribution. About 68% of the students' marks will fall within plus or minus one "standard deviation" of the average mark. On the English 30 Diploma Examination, for example, 68% of students who wrote the examination scored between 52.7% and 77.3%.

(Continued)

Letter Grade	School-Awarded Mark			Diploma Examination Mark			Final Blended Mark		
	Total	Male	Female	Total	Male	Female	Total	Male	Female
Français 30									
A (80-100%)	26.1	28.6	27.8	22.8	14.3	27.8	19.3	14.3	22.2
B (65-79%)	63.2	57.1	66.7	47.4	52.4	44.4	66.7	66.7	66.7
C (50-64%)	8.8	14.3	5.6	29.8	33.3	27.8	14.0	19.0	11.1
F (0-49%)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Average (%)	74.2	72.9	75.0	70.6	68.7	71.7	72.6	71.0	73.6
Standard Deviation (%)	7.1	8.1	6.4	10.9	9.9	11.3	8.9	7.8	8.1
Mathematics 30									
A (80-100%)	23.3	23.6	22.9	21.0	22.1	19.7	20.9	22.0	19.8
B (65-79%)	32.5	31.5	33.5	26.3	26.0	26.6	29.5	28.4	30.5
C (50-64%)	34.0	33.8	34.2	26.0	26.1	25.9	36.0	36.0	36.1
F (0-49%)	10.3	11.1	9.4	26.8	25.8	27.8	13.5	13.5	13.6
Average (%)	67.0	67.0	67.1	62.5	63.0	62.0	65.2	65.5	64.9
Standard Deviation (%)	14.8	15.2	14.5	18.3	18.6	18.0	15.8	16.1	15.4
Biology 30									
A (80-100%)	21.6	21.2	21.8	19.3	21.7	17.4	19.6	20.7	18.8
B (65-79%)	35.5	34.2	36.5	27.6	28.3	27.1	31.3	31.5	31.2
C (50-64%)	34.9	35.8	34.2	27.9	27.4	28.3	36.8	36.2	37.3
F (0-49%)	8.1	8.9	7.5	25.2	22.5	27.1	12.3	11.7	12.8
Average (%)	67.2	66.8	67.5	62.5	64.0	61.4	65.2	65.8	64.8
Standard Deviation (%)	13.3	13.6	13.1	17.8	17.2	17.2	14.6	14.7	14.5

(Continued)

Letter Grade	School-Awarded Mark			Diploma Examination Mark			Final Blended Mark		
	Total	Male	Female	Total	Male	Female	Total	Male	Female
Chemistry 30									
A (80-100%)	24.2	25.8	22.7	20.8	25.1	16.8	21.4	24.7	18.2
B (65-79%)	35.1	34.7	37.8	26.9	26.2	27.5	32.6	31.7	33.8
C (50-64%)	31.7	31.3	32.0	29.6	28.4	30.6	34.4	33.1	35.5
F (0-49%)	7.9	8.2	7.5	22.7	20.2	25.1	11.5	10.4	12.5
Average (%)	68.3	68.6	67.9	63.8	65.2	61.6	66.2	67.3	65.1
Standard Deviation (%)	13.8	14.3	13.3	17.5	17.7	17.0	14.9	15.3	14.4
Physics 30									
A (80-100%)	28.6	27.1	31.5	27.0	28.1	24.8	26.4	26.6	26.0
B (65-79%)	37.8	36.7	39.9	26.7	26.0	28.2	33.6	32.5	35.8
C (50-64%)	27.9	29.4	25.1	25.2	24.9	25.9	30.8	30.9	30.6
F (0-49%)	5.7	6.9	3.5	21.0	21.0	21.1	9.2	10.0	7.6
Average (%)	70.2	69.4	71.6	65.7	65.8	65.4	68.3	68.1	68.8
Standard Deviation (%)	13.4	13.8	12.4	17.9	18.3	17.3	14.8	15.3	14.0

SECTION 4
RESULTS FOR POPULATION SUBGROUPS

The majority of students who wrote the 1989-90 diploma examinations took the course in school as regular students; the second largest group were mature students.* Within each group were a few students who wrote the French translations of the examinations. Because the number of these students was very small, data are not provided.

Results for students with both school-awarded marks and diploma examination marks are reported in sections 2 and 3 of this report. This section, in focusing on results for population subgroups, reports the results for *all* students, including those with no school-awarded mark.

Subgroup Definitions

This section of the report compares results for students in subgroups defined by a combination of mature status and school-awarded mark status. Students in all subgroups have a current diploma examination mark. The subgroups are as follows:

- Regular School: students with a current school-awarded mark. This group is comprised of regular students and mature students:

  Regular Students: students with a current school-awarded mark, and

  Mature Students: students with mature status and a current school-awarded mark.

- Regular Students, School Mark Brought Forward: students without a current school-awarded mark but with an earlier school-awarded mark.

- Mature Students, School Mark Brought Forward: students with mature status who have no current school-awarded mark but do have an earlier school-awarded mark.

- Mature Students, Challenging Examination: students with mature status who have no school-awarded mark.

- Regular Students, No School Mark: students with no school-awarded mark.

Note:

1. Mature students challenging a diploma examination receive course credit if they pass the examination; regular students with no school-awarded mark receive no course credit.

2. When a mature student earns a diploma examination mark that is higher than that student's school-awarded mark, the former becomes the final mark; otherwise, the normal blending is done to calculate the final mark.

*A student with mature status is one who, as of September 1 of the current school year, is 20 years of age or older *or* is 19 years of age and has been out of school for eight consecutive months since reaching the age of 18 *or* is the holder of a previously awarded high school diploma or equivalent (see the *Guide to Education, Senior High Handbook 1990-91*, page 65).

Excluded Groups

Not included in any of the groups are students who were exempted from all or part of the examination, or who wrote a substantially different form of the examination because of special considerations. Students in English 30 or English 33 who by special permission wrote the two parts of the examination in two different examination sittings (e.g., January and June) are also excluded. Very few students fall into these categories.

Organization of Results

Three tables are provided for each diploma examination course. In the first table are the number and percentage of regular and mature students. In the second are the frequency, average examination mark and standard deviation of the total diploma examination marks for all subgroups. In the third table is a summary of the frequency, average school-awarded mark and standard deviation of school-awarded marks for those subgroups that have school-awarded marks.

ENGLISH 30

Achievement in English 30 by subgroups is compared in tables 4-1 to 4-3. About one in six English 30 students who wrote the 1989-90 diploma examinations had mature status.

For students with current school-awarded marks, regular students achieved higher averages in both school-awarded marks and diploma examination marks than mature students did.

Among all subgroups, regular students with current school-awarded marks achieved the highest average in diploma examination marks.

Subgroups with no current school-awarded marks achieved lower averages in diploma examination marks than regular school subgroups did.

Table 4-1
English 30
Maturity Status of Students Writing

Type	Number	Percentage
Regular Students	19 281	83.6
Mature Students	3 791	16.4
Total	23 072	100.0

Table 4-2
English 30
Diploma Examination Marks for Population Subgroups

Subgroup	Number of Students	Average	Standard Deviation
All Regular School	21 693	65.1	12.3
Regular Students	18 808	65.6	12.1
Mature Students	3 085	63.0	13.1
Regular Students, School Mark Brought Forward	568	62.1	12.2
Mature Students, School Mark Brought Forward	126	53.0	11.6
Mature Students, Challenging Examination	580	62.3	13.9
Regular Students, No School Mark	105	60.5	14.7

Table 4-3
English 30
School-Awarded Marks for Population Subgroups

Subgroup	Number of Students	Average	Standard Deviation
Regular School	21 693	66.1	12.4
Regular Students	18 808	66.8	12.3
Mature Students	3 085	64.8	13.0
Regular Students, School Mark Brought Forward	568	65.3	13.1
Mature Students, School Mark Brought Forward	126	62.7	10.4

*For an explanation of standard deviation, please see the footnote to Table 3-1.

ENGLISH 33

Achievement in English 33 by subgroups is compared in tables 4-4 to 4-6. About one in seven English 33 students who wrote the 1989-90 diploma examinations had mature status.

For students with current school-awarded marks, mature students achieved a higher average in school-awarded marks than regular students did; however, regular students achieved a slightly higher average on the diploma examination than mature students did.

Among all subgroups, mature students challenging examinations achieved the highest average in diploma examination marks. The reverse was found in English 30.

Table 4-4
English 33
Maturity Status of Students Writing

Type	Number	Percentage
Regular Students	7 732	86.3
Mature Students	1 223	13.7
Total	8 955	100.0

Table 4-5
English 33
Diploma Examination Marks for Population Subgroups

Subgroup	Number of Students	Average	Standard Deviation
All Regular School	8 318	62.0	11.6
Regular Students	7 531	62.0	11.1
Mature Students	787	61.2	15.1
Regular Students, School Mark Brought Forward	125	51.8	12.4
Mature Students, School Mark Brought Forward	34	44.1	8.7
Mature Students, Challenging Examination	402	64.6	14.9
Regular Students, No School Mark	76	62.6	10.7

Table 4-6
English 33
School-Awarded Marks for Population Subgroups

Subgroup	Number of Students	Average	Standard Deviation
Regular School	8 318	60.7	10.9
Regular Students	7 531	60.3	10.8
Mature Students	787	64.2	12.5
Regular Students, School Mark Brought Forward	125	53.5	10.2
Mature Students, School Mark Brought Forward	34	57.1	9.0

*For an explanation of standard deviation, please see the footnote to Table 3-1.

SOCIAL STUDIES 30

Achievement in Social Studies 30 by subgroups is compared in tables 4-7 to 4-9. About one in ten Social Studies 30 students who wrote the 1989-90 diploma examinations had mature status.

For students with current school-awarded marks, regular students achieved higher averages in both school-awarded marks and diploma examination marks than mature students did.

Among all subgroups, regular students with current school-awarded marks achieved the highest average on the examination.

Subgroups with no current school-awarded marks achieved much lower averages in diploma examination marks than regular school subgroups did.

Table 4-7
Social Studies 30
Maturity Status of Students Writing

Type	Number	Percentage
Regular Students	17 318	90.3
Mature Students	1 857	9.7
Total	19 175	100.0

Table 4-8
Social Studies 30
Diploma Examination Marks for Population Subgroups

Subgroup	Number of Students	Average	Standard Deviation
All Regular School	18 475	62.8	14.8
Regular Students	16 883	63.1	14.7
Mature Students	1 592	60.5	15.1
Regular Students, School Mark Brought Forward	337	55.3	14.4
Mature Students, School Mark Brought Forward	60	48.7	12.5
Mature Students, Challenging Examination	205	56.6	17.4
Regular Students, No School Mark	98	55.7	17.6

Table 4-9
Social Studies 30
School-Awarded Marks for Population Subgroups

Subgroup	Number of Students	Average	Standard Deviation
Regular School	18 475	66.5	12.6
Regular Students	16 883	66.5	12.6
Mature Students	1 592	65.8	12.7
Regular Students, School Mark Brought Forward	337	59.8	12.7
Mature Students, School Mark Brought Forward	60	60.8	11.3

*For an explanation of standard deviation, please see the footnote to Table 3-1.

FRANÇAIS 30

Achievement in Français 30 by subgroups is compared in tables 4-10 to 4-12.

Since the total number of students who wrote the Français 30 diploma examination is very small, discussion of results by subgroup is notprovided due to a possible low degree of reliability of the data.

The interpretation of results requires thoughtful consideration of numerous variables that contribute to student achievement and should be carried out with caution.

Table 4-10
Français 30
Maturity Status of Students Writing

Type	Number	Percentage
Regular Students	59	90.8
Mature Students	6	9.2
Total	65	100.0

Table 4-11
Français 30
Diploma Examination Marks for Population Subgroups

Subgroup	Number of Students	Average	Standard Deviation
All Regular School	57	70.6	10.9
Regular Students	56	70.7	10.9
Mature Students	1	66.0	N/A
Regular Students, School Mark Brought Forward	0	N/A	N/A
Mature Students, School Mark Brought Forward	0	N/A	N/A
Mature Students, Challenging Examination	5	50.8	22.8
Regular Students, No School Mark	3	57.7	33.9

Table 4-12
Français 30
School-Awarded Marks for Population Subgroups

Subgroup	Number of Students	Average	Standard Deviation
Regular School	57	74.2	7.1
Regular Students	56	74.4	7.0
Mature Students	1	66.0	N/A
Regular Students, School Mark Brought Forward	0	N/A	N/A
Mature Students, School Mark Brought Forward	0	N/A	N/A

*For an explanation of standard deviation, please see the footnote to Table 3-1.

MATHEMATICS 30

Achievement in Mathematics 30 by subgroups is compared in tables 4-13 to 4-15. About one in six Mathematics 30 students who wrote the 1989-90 diploma examinations had mature status.

For students with current school-awarded marks, regular students achieved higher averages in both school-awarded marks and diploma examination marks than mature students did.

Among all subgroups, regular students with current school-awarded marks achieved the highest average on the diploma examination.

Students with no current school marks, except mature students with school marks brought forward, achieved much lower averages than regular school subgroups did.

Table 4-13
Mathematics 30
Maturity Status of Students Writing

Type	Number	Percentage
Regular Students	15 338	81.9
Mature Students	3 382	18.1
Total	18 720	100.0

Table 4-14
Mathematics 30
Diploma Examination Marks for Population Subgroups

Subgroup	Number of Students	Average	Standard Deviation
All Regular School	17 831	62.6	18.2
Regular Students	14 880	63.3	18.3
Mature Students	2 951	59.3	17.5
Regular Students, School Mark Brought Forward	385	60.8	20.0
Mature Students, School Mark Brought Forward	108	45.7	16.7
Mature Students, Challenging Examination	323	50.6	21.8
Regular Students, No School Mark	73	47.1	21.8

Table 4-15
Mathematics 30
School-Awarded Marks for Population Subgroups

Subgroup	Number of Students	Average	Standard Deviation
Regular School	17 831	67.1	14.8
Regular Students	14 880	67.4	14.8
Mature Students	2 951	65.4	14.8
Regular Students, School Mark Brought Forward	385	67.0	15.8
Mature Students, School Mark Brought Forward	108	59.8	13.6

*For an explanation of standard deviation, please see the footnote to Table 3-1.

BIOLOGY 30

Achievement in Biology 30 by subgroups is compared in tables 4-16 to 4-18. About one in six Biology 30 students who wrote the 1989-90 diploma examinations had mature status.

For students with current school-awarded marks, mature students achieved a higher average in school-awarded marks and a slightly higher average in diploma examination marks compared with regular students.

Among all subgroups, mature students with current school-awarded marks achieved the highest average on the diploma examination.

Subgroups with no current school-awarded marks achieved much lower averages in diploma examination marks than regular school subgroups did.

Table 4-16
Biology 30
Maturity Status of Students Writing

Type	Number	Percentage
Regular Students	15 919	84.4
Mature Students	2 933	15.6
Total	18 852	100.0

Table 4-17
Biology 30
Diploma Examination Marks for Population Subgroups

Subgroup	Number of Students	Average	Standard Deviation
All Regular School	18 021	62.8	17.2
Regular Students	15 500	63.7	17.3
Mature Students	2 521	63.5	16.5
Regular Students, School Mark Brought Forward	344	53.8	16.5
Mature Students, School Mark Brought Forward	105	48.3	13.9
Mature Students, Challenging Examination	307	57.9	18.4
Regular Students, No School Mark	75	52.4	17.7

Table 4-18
Biology 30
School-Awarded Marks for Population Subgroups

Subgroup	Number of Students	Average	Standard Deviation
Regular School	18 021	67.3	13.3
Regular Students	15 500	66.9	13.3
Mature Students	2 521	70.1	13.0
Regular Students, School Mark Brought Forward	344	61.7	13.7
Mature Students, School Mark Brought Forward	105	63.0	12.9

*For an explanation of standard deviation, please see the footnote to Table 3-1.

CHEMISTRY 30

Achievement in Chemistry 30 by subgroups is compared in tables 4-19 to 4-21. About one in six Chemistry 30 students who wrote the 1989-90 diploma examinations had mature status.

For students with current school-awarded marks, the average of school-awarded marks was the same for regular students and mature students; however, regular students achieved a higher average in diploma examination marks than mature students did.

Among all subgroups, regular students with current school-awarded marks achieved the highest average in diploma examination marks.

Subgroups with no current school-awarded marks achieved much lower averages in diploma examination marks than regular school subgroups did.

Table 4-19
Chemistry 30
Maturity Status of Students Writing

Type	Number	Percentage
Regular Students	12 426	83.5
Mature Students	2 461	16.5
Total	14 887	100.0

Table 4-20
Chemistry 30
Diploma Examination Marks for Population Subgroups

Subgroup	Number of Students	Average	Standard Deviation
All Regular School	14 337	63.5	17.4
Regular Students	12 158	63.7	17.5
Mature Students	2 179	62.4	16.7
Regular Students, School Mark Brought Forward	231	61.1	19.5
Mature Students, School Mark Brought Forward	81	48.4	16.3
Mature Students, Challenging Examination	201	52.4	21.4
Regular Students, No School Mark	37	50.7	19.7

Table 4-21
Chemistry 30
School-Awarded Marks for Population Subgroups

Subgroup	Number of Students	Average	Standard Deviation
Regular School	14 337	68.3	13.8
Regular Students	12 158	68.5	13.7
Mature Students	2 179	68.5	14.0
Regular Students, School Mark Brought Forward	231	67.3	15.5
Mature Students, School Mark Brought Forward	81	61.4	13.0

*For an explanation of standard deviation, please see the footnote to Table 3-1.

PHYSICS 30

Achievement in Physics 30 by subgroups is compared in tables 4-22 to 4-24. About one in seven Physics 30 students who wrote the 1989-90 diploma examinations had mature status.

For students with current school-awarded marks, regular students achieved higher averages in both school-awarded marks and diploma examination marks.

Among all subgroups, regular students with current school-awarded marks achieved the highest average on the diploma examination.

Subgroups with no current school-awarded marks achieved much lower averages in diploma examination marks than subgroups with current school marks did.

Table 4-22
Physics 30
Maturity Status of Students Writing

Type	Number	Percentage
Regular Students	6 737	85.1
Mature Students	1 175	14.9
Total	7 912	100.0

Table 4-23
Physics 30
Diploma Examination Marks for Population Subgroups

Subgroup	Number of Students	Average	Standard Deviation
All Regular School	7 617	65.8	17.9
Regular Students	6 585	66.2	18.0
Mature Students	1 032	62.9	17.0
Regular Students, School Mark Brought Forward	119	61.1	17.1
Mature Students, School Mark Brought Forward	30	48.4	14.5
Mature Students, Challenging Examination	113	56.5	21.9
Regular Students, No School Mark	33	57.3	20.7

Table 4-24
Physics 30
School-Awarded Marks for Population Subgroups

Subgroup	Number of Students	Average	Standard Deviation
Regular School	7 617	70.2	13.4
Regular Students	6 585	70.4	13.2
Mature Students	1 032	68.8	14.1
Regular Students, School Mark Brought Forward	119	67.6	13.8
Mature Students, School Mark Brought Forward	30	66.6	11.7

*For an explanation of standard deviation, please see the footnote to Table 3-1.

SECTION 5
SPECIAL STUDY
COMPARING ACHIEVEMENT IN VARIOUS DIPLOMA EXAMINATION COURSES

The diploma examinations in each course are carefully developed to measure achievement of the objectives of that course at a certain standard. Field testing, item selection and examination review procedures are designed to produce examinations that represent an appropriate standard based on the expectations in each course. The Student Evaluation Branch, therefore, does not attempt to make examinations in different courses comparable in difficulty.

Nevertheless, students selecting courses (and parents, teachers, counsellors and administrators assisting them) may find information about the relative difficulty of the different examination courses helpful. This section of the annual report presents statistics that can be used to compare the difficulties of diploma examination courses.

Approach

One way to compare the examination courses is to look at the results in different courses for students who have taken various combinations of courses. The most straightforward way to make these comparisons is by pairs of courses. If a particular group of students took both English 30 and Social Studies 30, for example, we can assume that those students had the same average abilities and distribution of abilities when they took English 30 as they did when they took Social Studies 30. By examining the relationship between the results in the two courses for all those students who took them, we can draw some conclusions about a student's relative likelihood of success in those courses.

Tables in this section present statistics for all pairs of diploma examination courses. Careful study of these statistics enables us to develop a clearer understanding of the relationships among the courses, and the relationship between school-awarded marks and diploma examination marks in each course.

Table Organization

In each table in this section, a particular diploma examination course is paired with every other diploma examination course, allowing a variety of comparisons. The results for all students who wrote the particular examination course are highlighted in the first line of each table. In Table 5-1, for example, English 30 is compared with the other courses. Of the 22 388 students who wrote English 30, 89.5% achieved the acceptable standard and 12.9% achieved the standard of excellence. The average diploma examination mark was 65.0%, the average school-awarded mark was 66.0%, and the average blended mark was 66.0%.* (See Table 5-1.)

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* Although we refer to diploma examination marks of 50% or higher as "passing marks," actual awarding of credits in courses is based on the final blended mark. Because the blended mark is usually the average of the individual student's school-awarded and diploma examination marks, one might expect the average blended mark to be the average of the averages of the school and examination marks – in this case, 65.5%. However, about half the blended marks were rounded up by 0.5%, and none was rounded down. This phenomenon accounts for one-quarter of one mark in the difference. The remainder is accounted for by the policy for mature students with school-awarded marks. If a student with mature status receives a diploma examination mark that is higher than that student's school-awarded mark, the blended mark is raised to match the examination mark; otherwise, the normal blending process is followed.

Each line following the first line lists the results for students taking both the particular course featured in that table and the course named in the first column. For example, in the second line in Table 5-1, you can see that 684 students received examination scores in both English 30 and English 33. Of these 684 students, 63.3% received diploma examination marks of 50% or higher in English 30, and 95.5% received examination marks of 50% or higher in English 33. We may therefore conclude that it is considerably easier to pass English 33 than English 30. These two courses are designed to meet different needs, and the demands of the academically oriented English 30 curriculum are generally acknowledged to be greater than those of the more general English 33 curriculum.

Further, 0.7% of the students received examination marks of 80% or higher in English 30, and 11.1% received examination marks of 80% or higher in English 33. The 684 students averaged 53.0% on the English 30 examination, 67.9% on the English 33 examination, 54.6% on the English 30 school mark, 65.3% on the English 33 school mark, 54.1% on the English 30 blended mark, and 66.9% on the English 33 blended mark.

The English 30 examination mark correlated 0.662 with the English 33 examination mark, and the two school-awarded marks had a correlation of 0.449.**

These correlations show that predictions of a student's examination mark in one course from his examination mark in the other course would be considerably more accurate than predictions of one school-awarded mark from the other.

An Example

Information from each table may be used to draw conclusions about the relationship of the featured course to other courses. For example, in Table 5-3, Social Studies 30 is compared with the other courses. Most of the students who received marks in Social Studies 30 also received marks in English 30 (15 258 of 18 872). The examination pass rate in Social Studies for students taking both Social Studies and another course was higher than the overall Social Studies pass rate of 79.7% for all courses except English 33, indicating that those students who took two or more academic courses were more likely to pass Social Studies than the average student taking Social Studies and English 33.

For Social Studies paired with each other course, students taking both were more likely to pass English 30, English 33 or Français 30 than Social Studies 30, and more likely to pass Social Studies 30 than Mathematics 30, Biology 30, Chemistry 30 or Physics 30. At the higher range of marks, students were more likely to receive A's in English 33, Mathematics 30, Biology 30 or Chemistry 30 than in Social Studies 30, and more likely to receive A's in Social Studies than in English 30, Français 30 or Physics 30. For students taking both Social Studies and another subject, average examination marks were higher in English 30, English 33 or Français 30 than in Social Studies, lower in Mathematics 30, Chemistry 30 or Physics 30 than in Social Studies, and nearly the same in Biology 30.

** Correlations show the strength of the relationship between two variables. They can vary in value from -1 to +1. A value of 0 would indicate no relationship: knowing one mark would not help in predicting the other mark. A value of +1 or -1 would indicate an exact relationship: knowing one mark would allow the exact prediction of the other mark. If the correlation is positive, increases in one mark are associated with increases in the other; if it is negative, increases in one mark are associated with decreases in the other. All correlations in these tables are positive.

From these results, it seems that the Social Studies 30 examination is near the middle in relative difficulty. Which particular subjects are typically more difficult depends on the individual's goal, i.e. a pass mark, an average mark, or honors.

Average school-awarded marks for students taking both courses were higher in Social Studies 30 than in Mathematics 30, Chemistry 30 or Physics 30, lower in Social Studies 30 than in English 33 or Français 30, and nearly the same in English 30 or Biology 30. The pattern of correlations of school-awarded marks is similar to that of examination marks. The highest correlation is between Biology 30 school-awarded marks and Social Studies 30 school-awarded marks; the second highest is with English 30.

Average blended marks were higher in Social Studies 30 than in Mathematics 30, Chemistry 30, or Physics 30, lower in Social Studies 30 than in English 30, English 33, or Français 30, and about the same as in Biology 30.

Conclusions

The statistics show that in the 1989-90 school year, Social Studies 30 was in about the middle in difficulty among diploma examination courses. The most similar course is Biology 30, although the greater range of achievement in Biology makes it somewhat more likely that a student will achieve an A or an F in Biology compared with Social Studies. The second most similar course is English 30.

The same type of analysis can be performed for any of the courses.

Table 5-1
English 30 Compared with Other Diploma Examination Courses
1989-90 School Year

Other Course	Number Taking Both	% Achieving Acceptable Standard		% Achieving Standard of Excellence		Examination Average		School Mark Average		Blended Average		Correlations	
		Eng. 30	Other Course	Eng. 30	Other Course	Eng. 30	Other Course	Eng. 30	Other Course	Eng. 30	Other Course	Eng. 30 Exam Mark with Other Exam Mark	Eng. 30 School Mark with Other School Mark
English 30	22 388	89.5		12.9		65.0		66.0		66.0		1.000	1.000
English 33	684	63.3	95.5	0.7	11.1	53.0	67.9	54.6	65.3	54.1	66.9	0.662	0.449
Social Studies 30	15 258	93.3	82.6	15.1	16.2	66.8	64.1	67.7	67.6	67.6	66.2	0.690	0.711
Français 30	51	92.2	100.0	15.7	25.5	68.1	72.0	72.8	74.9	70.7	73.7	0.739	0.539
Mathematics 30	13 006	93.0	75.0	15.3	21.0	66.9	63.2	68.6	67.3	68.2	65.6	0.380	0.491
Biology 30	12 367	92.5	77.5	14.0	20.5	66.2	63.7	67.4	68.0	67.2	66.1	0.575	0.649
Chemistry 30	10 228	92.7	79.2	16.9	22.3	67.4	64.4	69.2	68.9	68.7	67.0	0.457	0.548
Physics 30	6 047	93.6	81.4	21.5	29.4	69.1	67.1	71.1	71.1	70.4	69.4	0.440	0.559

Table 5-2
English 33 Compared with Other Diploma Examination Courses
1989-90 School Year

Other Course	Number Taking Both	% Achieving Acceptable Standard		% Achieving Standard of Excellence		Examination Average		School Mark Average		Blended Average		Correlations	
		Eng. 33	Other Course	Eng. 33	Other Course	Eng. 33	Other Course	Eng. 33	Other Course	Eng. 33	Other Course	Eng. 33 Exam Mark with Other Exam Mark	Eng. 33 School Mark with Other School Mark
English 33	8 477	84.8		5.8		61.7		60.6		61.6		1.000	1.000
English 30	684	95.5	63.3	11.1	0.7	67.9	53.0	65.3	54.6	66.9	54.1	0.662	0.449
Social Studies 30	1 361	95.8	53.0	11.3	1.2	68.0	50.7	64.0	54.8	66.3	53.1	0.447	0.333
Français 30	4	100.0	100.0	0.0	0.0	59.0	57.5	61.3	66.8	60.3	62.5	N/A*	N/A
Mathematics 30	821	83.2	52.6	7.9	6.9	62.7	52.1	62.9	59.0	63.2	55.9	0.063	0.241
Biology 30	1 312	93.8	45.2	10.9	2.0	66.7	48.4	63.6	55.3	65.5	52.1	0.326	0.326
Chemistry 30	665	83.9	47.7	6.8	5.3	62.6	49.7	63.1	57.8	63.1	54.1	0.155	0.249
Physics 30	325	79.4	50.5	7.4	5.8	60.6	51.1	62.1	59.2	61.8	55.5	0.108	0.282

* Correlations are not provided when fewer than 30 students wrote examinations in both courses. For small numbers, correlations are unstable.

Table 5-3
Social Studies 30 Compared with Other Diploma Examination Courses
1989-90 School Year

Other Course	Number Taking Both	% Achieving Acceptable Standard		% Achieving Standard of Excellence		Examination Average		School Mark Average		Blended Average		Correlations	
		S.S.30	Other Course	S.S.30	Other Course	S.S.30	Other Course	S.S.30	Other Course	S.S.30	Other Course	S.S. 30 Exam Mark with Other Exam Mark	S.S. 30 School Mark with Other School Mark
Social Studies 30	**18 872**	**79.7**		**14.4**		**62.7**		**66.3**		**64.8**		**1.000**	**1.000**
English 30	15 258	82.6	93.3	16.2	15.1	64.1	66.8	67.6	67.7	66.2	67.6	0.690	0.711
English 33	1 361	53.0	95.8	1.2	11.3	50.7	68.0	54.8	64.0	53.1	66.3	0.447	0.333
Français 30	21	81.0	100.0	33.3	19.0	66.1	69.9	71.8	74.4	69.2	72.3	N/A*	N/A
Mathematics 30	11 519	86.5	74.8	17.5	20.3	65.7	62.9	69.4	67.0	67.9	65.3	0.518	0.590
Biology 30	11 014	81.9	77.5	15.3	20.2	63.5	63.6	67.3	67.7	65.7	65.9	0.710	0.741
Chemistry 30	8 850	87.2	78.6	20.0	21.0	66.7	63.8	70.2	68.5	68.7	66.5	0.625	0.660
Physics 30	5 101	93.4	81.0	29.1	28.6	71.0	66.7	73.6	70.8	72.6	69.0	0.609	0.652

* Correlations are not provided when fewer than 30 students wrote examinations in both courses. For small numbers, correlations are unstable.

Table 5-4
Français 30 Compared with Other Diploma Examination Courses
1989-90 School Year

Other Course	Number Taking Both	% Achieving Acceptable Standard		% Achieving Standard of Excellence		Examination Average		School Mark Average		Blended Average		Correlations	
		Fr.30	Other Course	Fr.30	Other Course	Fr.30	Other Course	Fr.30	Other Course	Fr.30	Other Course	Fr. 30 Exam Mark with Other Exam Mark	Fr. 30 School Mark with Other School Mark
Français 30	57	100.0		22.8		70.6		74.2		72.6		1.000	1.000
English 30	51	100.0	92.2	25.5	15.7	72.0	68.1	74.9	72.8	73.7	70.7	0.739	0.539
English 33	4	100.0	100.0	100.0	0.0	57.5	59.0	66.8	61.3	62.5	60.3	N/A*	N/A
Social Studies 30	21	100.0	81.0	19.0	33.3	69.9	66.1	74.4	71.8	72.3	69.2	N/A	N/A
Mathematics 30	25	100.0	92.0	16.0	40.0	69.3	71.6	74.8	74.6	72.2	73.4	N/A	N/A
Biology 30	16	100.0	87.5	6.3	18.8	67.5	65.1	73.5	70.6	70.7	68.2	N/A	N/A
Chemistry 30	15	100.0	73.3	13.3	20.0	69.0	63.9	74.5	69.1	71.9	66.7	N/A	N/A
Physics 30	7	100.0	100.0	57.1	42.9	79.0	73.4	82.0	78.3	80.6	67.1	N/A	N/A

* Correlations are not provided when fewer than 30 students wrote examinations in both courses. For small numbers, correlations are unstable.

Table 5-5
Mathematics 30 Compared with Other Diploma Examination Courses
1989-90 School Year

Other Course	Number Taking Both	% Achieving Acceptable Standard		% Achieving Standard of Excellence		Examination Average		School Mark Average		Blended Average		Correlations	
		Math.30	Other Course	Math.30	Other Course	Math.30	Other Course	Math.30	Other Course	Math.30	Other Course	Math. 30 Exam Mark with Other Exam Mark	Math. 30 School Mark with Other School Mark
Mathematics 30	18 324	73.2		21.0		62.5		67.0		65.2		1.000	1.000
English 30	13 006	75.0	93.0	21.0	15.3	63.2	66.9	67.3	68.6	65.6	68.2	0.380	0.491
English 33	821	52.6	83.2	6.9	7.9	52.1	62.7	59.0	62.9	55.9	63.2	0.063	0.241
Social Studies 30	11 519	74.8	86.5	20.3	17.5	62.9	65.7	67.0	69.4	65.3	67.9	0.518	0.590
Français 30	25	92.0	100.0	40.0	16.0	71.6	69.3	74.6	74.8	73.4	72.2	N/A*	N/A
Biology 30	9 294	72.0	83.6	18.7	23.5	61.6	66.5	66.2	70.3	64.2	68.7	0.619	0.662
Chemistry 30	9 502	80.1	81.6	23.7	21.4	65.5	64.9	69.0	69.2	67.6	67.4	0.719	0.752
Physics 30	5 753	87.6	79.8	35.4	25.8	71.0	65.7	73.6	69.9	72.7	68.2	0.708	0.747

* Correlations are not provided when fewer than 30 students wrote examinations in both courses. For small numbers, correlations are unstable.

Table 5-6
Biology 30 Compared with Other Diploma Examination Courses
1989-90 School Year

Other Course	Number Taking Both	% Achieving Acceptable Standard		% Achieving Standard of Excellence		Examination Average		School Mark Average		Blended Average		Correlations	
		Bio.30	Other Course	Bio.30	Other Course	Bio.30	Other Course	Bio.30	Other Course	Bio.30	Other Course	Bio. 30 Exam Mark with Other Exam Mark	Bio. 30 School Mark with Other School Mark
Biology 30	**18 470**	**74.8**		**19.3**		**62.5**		**67.2**		**65.2**		**1.000**	**1.000**
English 30	12 367	77.5	92.5	20.5	14.0	63.7	66.2	68.0	67.4	66.1	67.2	0.575	0.649
English 33	1 312	45.2	93.8	2.0	10.9	48.4	66.7	55.3	63.6	52.1	65.5	0.326	0.326
Social Studies 30	11 014	77.5	81.9	20.2	15.3	63.6	63.5	67.7	67.3	65.9	65.7	0.710	0.741
Français 30	16	87.5	100.0	18.8	6.3	65.1	67.5	70.6	73.5	68.2	70.7	N/A*	N/A
Mathematics 30	9 294	83.6	72.0	23.5	18.7	66.5	61.6	70.3	66.2	68.7	64.2	0.619	0.662
Chemistry 30	7 632	85.8	77.6	27.1	20.1	68.1	63.3	71.7	68.2	70.2	66.1	0.722	0.738
Physics 30	3 403	93.2	81.2	43.6	29.2	74.7	67.1	76.7	71.6	75.9	69.7	0.712	0.732

* Correlations are not provided when fewer than 30 students wrote examinations in both courses. For small numbers, correlations are unstable.

Table 5-7
Chemistry 30 Compared with Other Diploma Examination Courses
1989-90 School Year

Other Course	Number Taking Both	% Achieving Acceptable Standard		% Achieving Standard of Excellence		Examination Average		School Mark Average		Blended Average		Correlations	
		Chem.30	Other Course	Chem.30	Other Course	Chem.30	Other Course	Chem.30	Other Course	Chem.30	Other Course	Chem. 30 Exam Mark with Other Exam Mark	Chem. 30 School Mark with Other School Mark
Chemistry 30	**14 649**	**77.3**		**20.8**		**63.3**		**68.3**		**68.2**		**1.000**	**1.000**
English 30	10 228	79.2	92.7	22.3	16.9	64.4	67.4	68.9	69.2	67.0	68.7	0.457	0.548
English 33	665	47.7	83.9	5.3	6.8	49.7	62.6	57.8	63.1	54.1	63.1	0.155	0.249
Social Studies 30	8 850	78.6	87.2	21.0	20.0	63.8	66.7	68.5	70.2	66.5	68.7	0.625	0.660
Français 30	15	73.3	100.0	20.0	13.3	63.9	69.0	69.1	74.5	66.7	71.9	N/A*	N/A
Mathematics 30	9 502	81.6	80.1	21.4	23.7	64.9	65.5	69.2	69.0	67.4	67.6	0.719	0.752
Biology 30	7 632	77.6	85.8	20.1	27.1	63.3	68.1	68.2	71.7	66.1	70.2	0.722	0.738
Physics 30	4 705	90.6	82.6	37.4	30.3	72.1	67.8	74.7	71.6	73.7	70.0	0.760	0.781

* Correlations are not provided when fewer than 30 students wrote examinations in both courses. For small numbers, correlations are unstable.

Table 5-8
Physics 30 Compared with Other Diploma Examination Courses
1989-90 School Year

Other Course	Number Taking Both	% Achieving Acceptable Standard		% Achieving Standard of Excellence		Examination Average		School Mark Average		Blended Average		Correlations	
		Phys.30	Other Course	Phys.30	Other Course	Phys.30	Other Course	Phys.30	Other Course	Phys.30	Other Course	Phys. 30 Exam Mark with Other Exam Mark	Phys. 30 School Mark with Other School Mark
Physics 30	**7 766**	**79.0**		**27.0**		**65.7**		**70.2**		**68.3**		**1.000**	**1.000**
English 30	6 047	81.4	93.6	29.4	21.5	67.1	69.1	71.1	71.1	69.4	70.4	0.440	0.559
English 33	325	50.5	79.4	5.8	7.4	51.1	60.6	59.2	62.1	55.5	61.8	0.108	0.282
Social Studies 30	5 101	81.0	93.4	28.6	29.1	66.7	71.0	70.8	73.6	69.0	72.6	0.609	0.652
Français 30	7	100.0	100.0	42.9	57.1	73.4	79.0	78.3	82.0	76.1	80.6	N/A*	N/A
Mathematics 30	5 753	79.8	87.6	25.8	35.4	65.7	71.0	69.9	73.6	68.2	72.7	0.708	0.747
Biology 30	3 403	81.2	93.2	29.2	43.6	67.1	74.7	71.6	76.7	69.7	75.9	0.712	0.732
Chemistry 30	4 705	82.6	90.6	30.3	37.4	67.8	72.1	71.6	74.7	70.0	73.7	0.760	0.781

* Correlations are not provided when fewer than 30 students wrote examinations in both courses. For small numbers, correlations are unstable.

Table 5-9
Correlations of Diploma Examination Marks with School-Awarded Marks by Course
1989-90 School Year

Subject	Number of Students	Correlation Coefficient
English 30	22 388	.643
English 33	8 477	.388
Social Studies 30	18 872	.773
Français 30	57	.595
Mathematics 30	18 324	.803
Biology 30	18 470	.814
Chemistry 30	14 649	.807
Physics 30	7 766	.789

Table 5-9 presents the correlations between diploma examination marks and school-awarded marks for each diploma examination course. The two marks represent separate assessments of the achievement of curricular objectives. Some of these objectives are similar; others are different. The examinations are limited to those objectives that can be assessed by paper and pencil tests. School-awarded marks include assessments of other objectives such as laboratory skills in the sciences, or speaking and listening in the language arts.

Other factors include variations among teachers in assessment practices, the longer time span of school-based assessment, the effect of failure to complete assignments and individuals' adjustments to the different types of assessment.

Therefore, the two marks should not be expected to be identical, and the correlations should be less than 1.0.

SECTION 6
EXAMINERS' SUMMARY STATEMENTS

ENGLISH 30 EXAMINERS' SUMMARY STATEMENTS

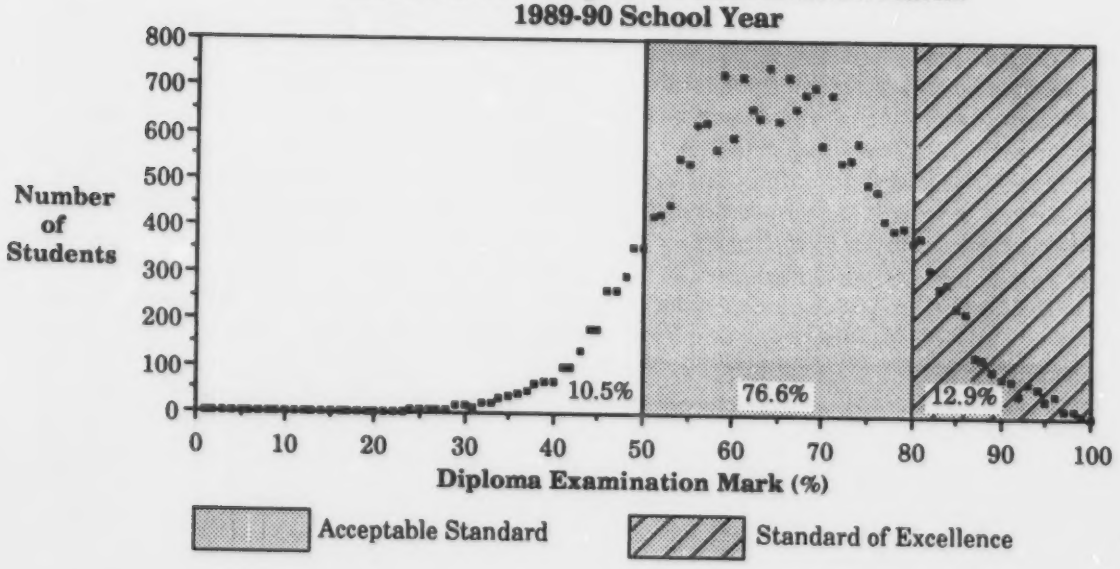
Student Population – Who Wrote the Examinations?

During the 1989-90 school year, approximately 70% of the students who wrote a diploma examination in English wrote English 30. This proportion of the total population has remained relatively constant over the last three school years. English 30 is a course "appropriate for students intending to pursue further academic studies" (*Senior High School Language Arts 1982 Curriculum Guide,* page 6). It appears that a large proportion of students expecting to graduate are attempting to keep their options open in regard to future academic study by enrolling in English 30.

Overall Performance

The overall performance of students writing the English 30 diploma examinations during the 1989-90 school year was satisfactory and was similar to performance in previous years, even though a slightly larger proportion of students achieved blended marks at the *standard of excellence* (see Figure 2-4). In 1989-90, 89.5% of the students writing English 30 attained diploma examination marks at or above the *acceptable standard*, and a significant proportion of the students, 12.9%, attained diploma examination marks at or above the *standard of excellence* (see Figure 6-1). Most of the students who did not meet the *acceptable standard* attained marks ranging from 40% to 49%. These students may be able to achieve the *acceptable standard* on future diploma examinations in English 30 if they receive further instruction to improve their knowledge and skills.

Figure 6-1
Distribution of English 30 Examination Marks
1989-90 School Year



Achievement of Standards

The Acceptable Standard

Students who achieved the *acceptable standard* were able to respond to the emotional tone of the reading selection presented in Part A: Written Response and to relate details from the selection to their own experiences when writing their responses to the *Minor Assignment*. In responding to the *Major Assignment*, students at this level were generally successful in selecting appropriate literature and applying it to the topic at hand. Their literary interpretations, while sometimes incomplete, were generally defensible, and their ability to sustain a central idea was generally maintained. These students were able to select some words or phrases for effect and to effectively structure some sentences.

However, such instances were rare in the writing of students just meeting the acceptable standard. Far more frequent was the use of general words and phrases where precision was required, as was the use of conventional syntax where emphasis would have made their writing more lively. Students just meeting the acceptable standard produced writing that had little voice and took few risks.

In responding to Part B: Reading (Multiple Choice), students achieving the acceptable standard demonstrated that they were able to understand most of the reading selections presented and to make some inferences from context. Often, however, they were thwarted by questions that demanded close reading of a passage, particularly those that required them to re-read portions of the passage as they worked through the questions and alternative responses.

The Standard of Excellence

Students who achieved the *standard of excellence* produced writing on Part A: Written Response that prompted the respect of the markers. These students were able to relate details from the reading selections to their own experiences and to demonstrate the significance of these relationships. Their responses to the *Minor Assignment* demonstrated that they have learned to appreciate the importance of concrete detail in personal writing. In responding to the *Major Assignment*, students at this level of achievement were consistently able to select and apply a variety of literature to the topic at hand. It was apparent that these students have learned well how to interpret and discuss literature, how to organize their thoughts on paper, how to choose words and structures for effect and how to follow the conventions of written language. These students were comfortable with writing, and their confidence allowed them to write in their own voices and to take calculated risks that gave them a significant payoff in terms of reader appeal.

In responding to Part B: Reading (Multiple Choice), students achieving the standard of excellence demonstrated that they were able to understand the entire range of reading selections presented. These students made inferences and evaluations appropriate to the selections and were able to understand complex literary structures such as those found in selections from Shakespearean drama and poetry based on contrasting or ironic images. They read the selections closely, imagining the world created by the writer. They read the questions and alternative responses very carefully, checking the text to confirm their choice of answer.

ENGLISH 33 EXAMINERS' SUMMARY STATEMENTS

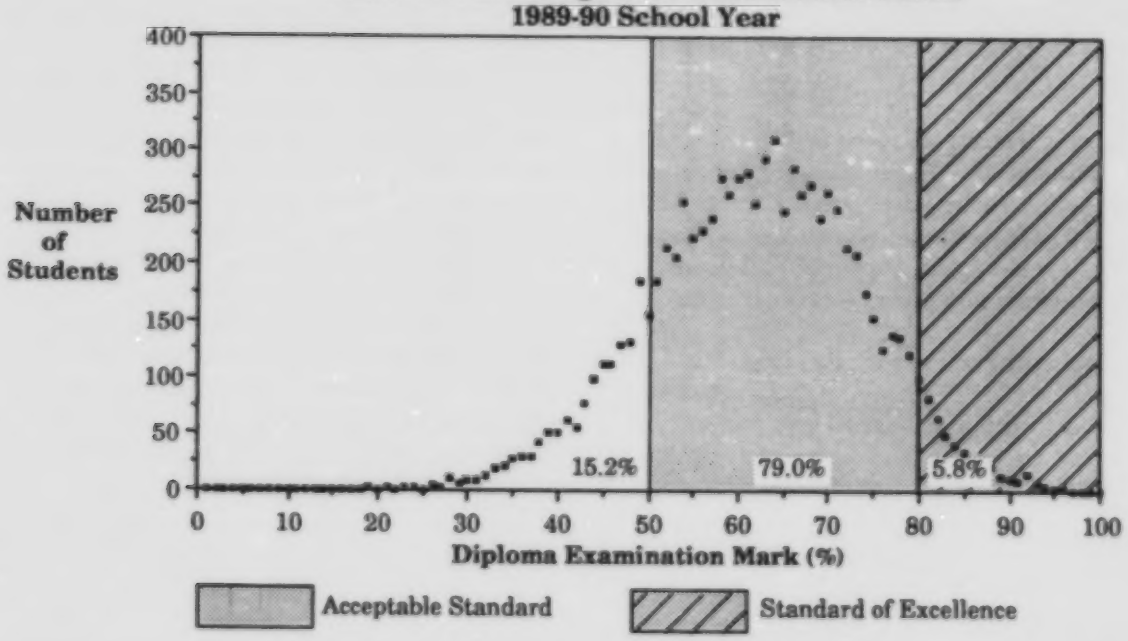
Student Population – Who Wrote the Examinations?

During the 1989-90 school year, approximately 30% of the students who wrote a diploma examination in English wrote English 33. This proportion of the total population has remained relatively constant over the last three school years. English 33 is a course "appropriate for students intending to go to vocational school or to seek employment immediately after leaving high school" (*Senior High School Language Arts 1982 Curriculum Guide*, page 6). The fact that such a small proportion of Grade 12 students enrols in English 33 may indicate that most students intend to go on to academic postsecondary studies.

Overall Performance

The overall performance of students writing the English 33 diploma examinations during the 1989-1990 school year was satisfactory and was similar to performance in previous years. In 1989-90, 84.8% of the students writing English 33 attained diploma examination marks at or above the *acceptable standard*, and many students, 5.8%, attained diploma examination marks at or above the *standard of excellence* (see Figure 6-2). Although the population of students that did not meet the *acceptable standard* was relatively large, 15.2%, most of these students attained marks ranging from 40% to 49%. These students may be able to achieve the *acceptable standard* on future diploma examinations in English 33 if they receive further instruction to improve their knowledge and skills.

Figure 6-2
Distribution of English 33 Examination Marks
1989-90 School Year



Achievement of Standards

The Acceptable Standard

Most of the students who achieved the *acceptable standard* were able to respond clearly and correctly to all three assignments in Part A: Written Response. They demonstrated an understanding of the reading selection in their responses to *Section I: Personal Response to Literature* and presented conventional, but plausibly supported, opinions. When responding to *Section II: Functional Writing*, many of these students used information supplied in the assignment without elaborating on it. Students just achieving the acceptable standard tended to meet only the minimum mechanical requirements of the assignment but adopted an appropriate tone that demonstrated an awareness of audience. When responding to *Section III: Response to Visual Communication*, however, some of these students had difficulty organizing their work coherently and were unable to provide a sustained and thoughtful response to the visual communication.

Students achieving the acceptable standard in their written work generally communicated adequately. Although the ideas presented in the writing of these students were generally discernible by the reader, errors in the conventions of written language were present. Some of these errors reduced the clarity of communication. These students tended to use general rather than precise words and relied on conventional structures; now and then, however, they appeared to deliberately choose words and structures for effect.

In responding to Part B: Reading (Multiple Choice), students achieving the acceptable standard were able to read and understand many of the passages, which were intended for a general audience. They were able to draw some inferences from context and to apply basic literary concepts such as metaphor and foreshadowing. However, some of these students had difficulty with irony, particularly the use of ironic tone.

The Standard of Excellence

Students who achieved the *standard of excellence* generally responded well to all assignments in Part A: Written Response. Their responses to *Section I: Personal Response to Literature* demonstrated an insightful understanding of the reading selections. Their opinions were perceptive and their support precise. Many of these students used quotations from the selections judiciously and often thoughtfully. These students wrote substantial compositions of high quality and had no difficulty maintaining unity in their work.

When responding to *Section II: Functional Writing*, these students went beyond the basic requirements of the assignments. Their writing was enhanced by details that gave substance to their requests. In many cases, information was organized in original ways. Markers rewarded students for clarity of thought expressed in direct, clear and correct language. Students achieving the standard of excellence seemed to appreciate the need to read carefully, to follow instructions and to use language in meaningful and interesting ways.

When responding to *Section III: Response to Visual Communication*, many of these students chose a general idea suggested by the photograph and explained how the details in the photograph and the photographer's techniques reinforced that idea. These students often began by noting those features that provided contrast or tension.

In responding to Part B: Reading (Multiple Choice), students achieving the standard of excellence were able to read and understand the full range of reading selections presented. These students demonstrated that they read the selections and all parts of each question carefully and thoughtfully before answering. They appeared to have taken the time to go back to the reading selection and re-read sections when it was appropriate to do so to confirm an answer.

In general, results for the 1989-90 school year demonstrated that English 33 students were able to rise to the challenge. They appeared to respond better to literature that moved them emotionally than they did to less emotive literature. The examination results for Part B: Reading (Multiple Choice) demonstrated that students did particularly well on challenging reading selections that were beautifully written on subjects of interest to young people.

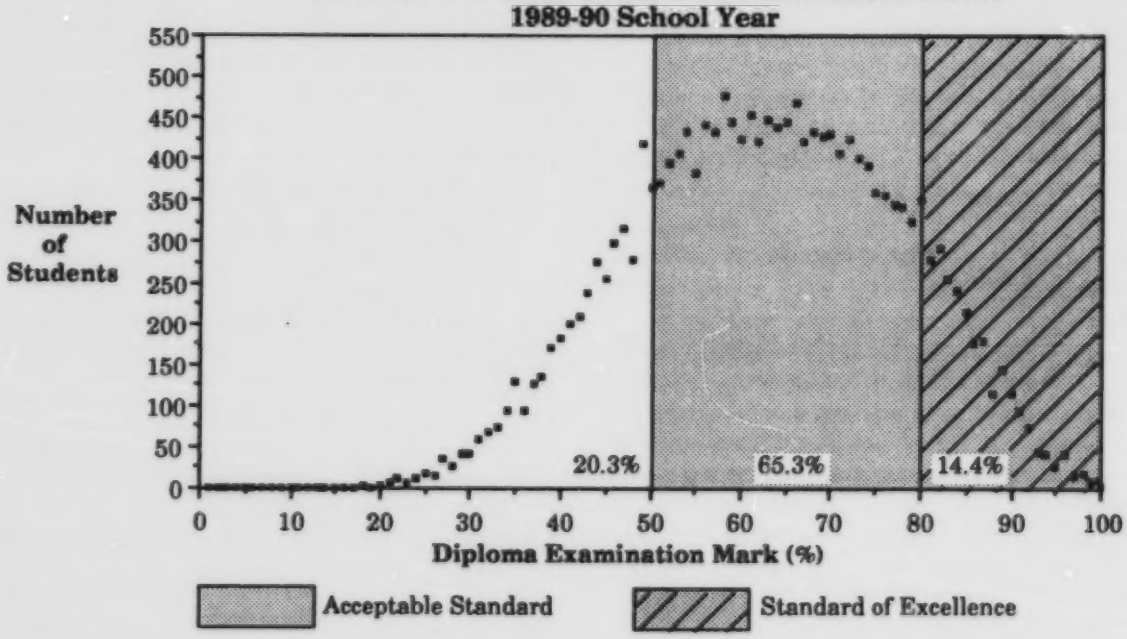
Student Population – Who Wrote the Examinations?

During the 1989-90 school year, well over half of the Grade 12 population wrote the Social Studies 30 Diploma Examination. To qualify for an Advanced High School Diploma in Alberta, a student must receive credit in Social Studies 30. This suggests that a majority of students who expected to graduate in 1990 planned to earn an advanced diploma.

Overall Performance

The overall performance of students who wrote the Social Studies 30 diploma examinations during the 1989-90 school year was satisfactory and was similar to performance in previous years. In 1989-90, 79.7% of the students writing Social Studies 30 attained diploma examination marks at or above the *acceptable standard*, and a significant proportion of the students, 14.4%, attained diploma examination marks at or above the *standard of excellence* (see Figure 6-3). Although a significant proportion of the students, 20.3%, did not meet the *acceptable standard*, most of them, 14.1%, obtained marks ranging from 40% to 49%. Many of these students may be able to succeed on future diploma examinations in Social Studies 30 if they receive additional instruction to increase their knowledge and skills.

Figure 6-3
Distribution of Social Studies 30 Examination Marks
1989-90 School Year



Achievement of Standards

The Acceptable Standard

In answering the multiple-choice questions in Part A, students who achieved the *acceptable standard* were able to recall certain historical events or economic and political concepts but experienced difficulty in applying such content to new or unfamiliar situations. In particular, textual or data-based questions – such as those involving a cartoon, map or series of quotations or historical developments – were difficult for students just meeting the acceptable standard. Such questions required students to use their interpretive, analytical, and problem-solving skills to deduce correct answers.

Many students who just met the acceptable standard had difficulty dealing with the complexity of the task on Part B: Written Response. Typically, these students provided a summary of information rather than an argumentative essay. No matter how well written, summaries do not meet the requirements of the assignment. To do well, students must apply and clearly relate pertinent historical or contemporary knowledge as evidence to support their positions rather than simply marshaling incoherent, unnecessary, or marginally relevant information. Many students who fell short of the acceptable standard substituted memorized information for reasoned thought or made largely unsupported simple assertions. Others who perform below the acceptable standard chose to present descriptive writing that largely avoided addressing the issue at hand or, when referring to the Soviet Union and Eastern Europe, appeared to be quite unaware of the momentous changes that have recently occurred in these regions of the world. Too many students who performed below the acceptable standard produced writing that may not have reflected their true potential as learners in Social Studies 30.

The Standard of Excellence

In answering the multiple-choice questions in Part A, students achieving the *standard of excellence* demonstrated that they understood social studies concepts and comprehended historical, political and economic relationships, many of which were quite complex. They were consistently able to interpret and evaluate information and ideas, and to review, analyse and synthesize specific information.

Students who achieved the standard of excellence often produced powerful and substantive writing in their responses to the assignment in Part B: Written Response. For these students to have produced such compositions, given the complexity of the task and the constraints of time, is truly remarkable. Many of the responses of students achieving at this level revealed qualities of argument, support, development and organization that exhibited a breadth of historical and contemporary knowledge. Indeed, the teachers involved in confirming standards before marking the written-response sections of the Social Studies 30 diploma examinations agreed that the students achieving the standard of excellence often produced writing that exceeded what they themselves could do.

FRANÇAIS 30 EXAMINERS' SUMMARY STATEMENTS

Student Population – Who Wrote the Examination?

Very few students wrote the Français 30 Diploma Examination in the 1989-90 school year; therefore, the results must be interpreted with caution.

Français 30 is the final course of the Français 10-20-30 program designed for francophone students according to Section 23 of the Canadian *Charter of Rights and Freedoms*. Students enrolled in Français 30 are required to write the Français 30 Diploma Examination.

The January 1990 administration was the first administration of the Français 30 Diploma Examination. Because all Alberta schools offering Français 30 in the 1989-90 school year did so in the first semester, the January examination was administered to the total school population of 57 students. (Two students without school-awarded marks also wrote in January.)

Most students who wrote the Français 30 diploma examination also wrote the English 30 or English 33 diploma examinations. The average marks of the 51 students who wrote both the English 30 and the Français 30 diploma examinations were 68.1% in English 30 and 72.0% in Français 30.

The average marks of the four students who wrote both English 33 and Français 30 diploma examinations were 59.0% in English 33 and 57.5% in Français 30. Comparisons of students' Français 30 marks with their marks in Grade 12 diploma subjects other than English revealed a similar small difference in averages.

A Français 30 Diploma Examination was administered to three students in June 1990, one of whom was attempting to raise the January mark and two of whom were registered as "private study" students. In August, four "private study" students wrote the examination. These "private study" students were adults seeking credit in high school French without having taken the course. Their results generally reflected their lack of familiarity with the Français 30 course.

Overall Performance

The overall performance of the 57 students who wrote the Français 30 Diploma Examination in January 1990 was satisfactory. They all attained marks at or above the *acceptable standard*, and 22.8% of them attained the *standard of excellence*.

Discussion of Performance

La Partie A: Production écrite

The written-response section of the Français 30 Diploma Examination required students to write two assignments related to the same piece of literature. The first assignment elicited a personal response to the literature. The second asked students to choose from literature read in class and relate those selections to the given theme. Students were expected to choose their ideas carefully and to give pertinent details organized in a coherent and unified manner.

Students seemed to understand the two assignments and most developed satisfactory or better compositions. The content of the essays showed that students clearly understood the fable "La grenouille qui se veut faire aussi grosse que le boeuf," on which the January 1990 assignments were based.

For the first assignment (Premier Sujet), students were able to express their reaction to the moral of La Fontaine's fable: that people set unrealistic goals for themselves. Moreover, students were able to defend their positions with concrete examples from personal experience or from observation. Their ideas were generally sound and often enjoyable to read.

For the second assignment (Deuxième Sujet), which was related to literature students had studied in Français 30, they had no difficulty selecting literature in which one of the characters realized his or her ambition or fell victim to it. Moreover, they were able to present from the literature examples and details that supported their theses. A very few wrote only plot summaries. Students' ability to handle the topic and to express themselves effectively was impressive.

La Partie B: Compréhension écrite (choix multiples)

Part B: Reading (Multiple Choice) of the examination consisted of two booklets. The readings booklet contained seven passages: two nonfiction, three fiction, one poem, and one piece of drama. The questions booklet contained 70 questions based on these readings. The questions were classified according to thinking skills and curriculum content.

Students were able to identify and select, infer, apply and interpret, as well as evaluate or judge main ideas, the rapport between the author and the reader, and the values expressed in the selections.

Caution has to be used when considering the results because the number of students writing was very small (57) and this was the first year of the course. Students' performance was generally satisfactory, however, and teachers who reviewed the diploma examination for standards felt that the reading selections were fair, although they thought the poem "L'Albatros" was challenging. These teachers suggested that students should be encouraged to refer to the reading selections to check their answers when answering multiple-choice questions.

MATHEMATICS 30 EXAMINERS' SUMMARY STATEMENTS

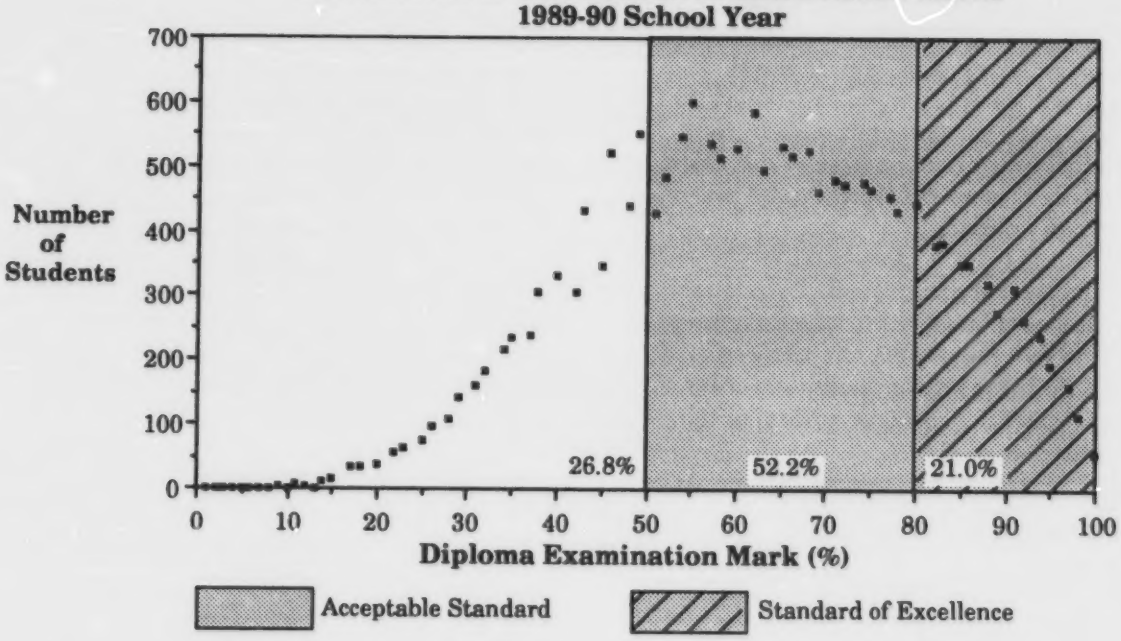
Student Population – Who Wrote the Examinations?

The learner expectations for Mathematics 30 are appropriate for approximately half of those students who enrol in a Grade 12 English course. In the 1989-90 school year, approximately 60% of the students who were enrolled in a Grade 12 English course were also enrolled in Mathematics 30. This suggests that students who are not in the target group are nonetheless willing to take on Mathematics 30, which is a challenging course.

Overall Performance

The overall performance of students writing the Mathematics 30 diploma examinations during the 1989-90 school year was satisfactory overall and was similar to performance in previous years, even though a slightly smaller proportion of students achieved blended marks at the *standard of excellence*. In 1989-90, 73.2% of the students writing Mathematics 30 attained diploma examination marks at or above the *acceptable standard*, and a significant proportion of the students, 21.0%, attained diploma examination marks at or above the *standard of excellence* (see Figure 6-4).

Figure 6-4
Distribution of Mathematics 30 Examination Marks
1989-90 School Year



Performance from Semester to Semester

Students who wrote the January 1990 examination did better than those who wrote the June 1990 examination, even though both examinations were designed to the same level of expectation. Achievement comparisons are shown in the table below.

There are two hypotheses that could account for these differences: the first is that the stronger mathematics student who wishes to register in Mathematics 31 in the second semester registers in Mathematics 30 in the first semester. The second hypothesis is that weaker students in mathematics register in Mathematics 30 during the second semester as Mathematics 30 is their fourth senior high mathematics course. Data are presently being collected to evaluate these hypotheses.

	January 1990	June 1990
Students Achieving Acceptable Standard	86.8%	82.8%
Students Achieving Standard of Excellence	22.3%	18.0%
Diploma Examination Average	63.4%	60.0%

Achievement of Standards

The Acceptable Standard

Students who did not attain the *acceptable standard* of performance on the Mathematics 30 Diploma Examination had difficulty solving problems other than those that required solving for a single piece of information using a formula provided on the formula sheet. These students were able to solve problems that required a one-step translation such as changing the measure of an angle from degree measure to radian measure.

In terms of number skills, students who did not achieve the acceptable standard had difficulty in dealing with numbers other than whole numbers. On the whole, this group of students saw mathematics in "parts," that is, they could not make relationships between mathematics concepts. For example, these students were able to find the x-intercepts of a graph, were able to factor a polynomial, but were not able to recognize that there is a relationship between the factors of a polynomial and the x-intercepts of the graph.

Students who met the acceptable standard of performance were able to solve problems involving more than one step as long as the information provided was given in a "standard" form and could be referenced on the formula sheet. In trigonometry, for instance, students were able to provide the solution for a trigonometric equation but were unable to provide the missing piece of a trigonometric equation when the solution was given. Similarly, these students were able to provide information regarding conic sections as long as the equation for the quadratic relation was given in the "standard" form. Once the material was provided in a "nonstandard" format, many students at the lower level had difficulty. For the most part, students in this group were able to recognize relationships between mathematical concepts and were able to identify these relationships as long as they were presented in a specific sense. Many were not able to identify these relationships in the general case.

The Standard of Excellence

Students who attained the *standard of excellence* in Mathematics 30 had little difficulty in solving any problems, regardless of the manner in which the material was presented and the number of steps required to solve the problem. For instance, those students who achieved the standard of excellence were able to read information from equations that were presented in both a "standard" and "nonstandard" form. Further, they recognized and were able to describe relationships between mathematical concepts in both the specific and the general cases.

BIOLOGY 30 EXAMINERS' SUMMARY STATEMENTS

Student Population – Who Wrote the Examinations?

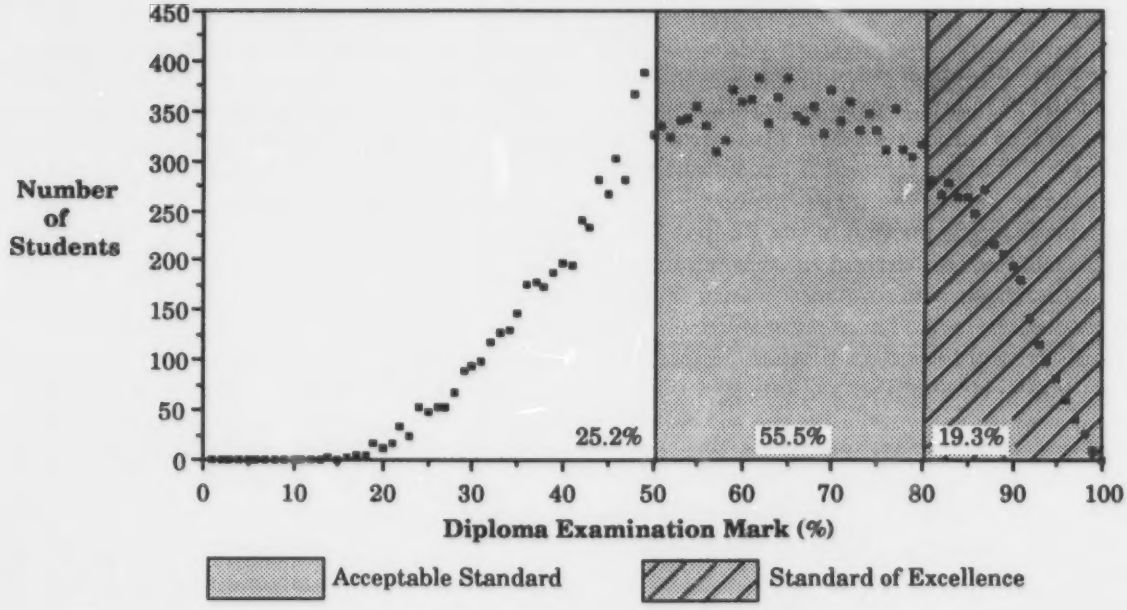
In the 1989-90 school year, approximately 60% of the students who were enrolled in a Grade 12 English course were also enrolled in Biology 30. This enrolment is consistent with the expected size of the target group. However, the composition of the Biology 30 population requires careful consideration on the part of those who counsel students in the selection of courses. Three subgroups – students who obtained an English 33 examination mark, students who obtained a Biology 30 examination mark for the second or third time and students who obtained a Biology 30 diploma examination mark while registered in Grade 11 – are of particular note in that each obtained a significantly lower average mark than that obtained by students who wrote the Biology 30 diploma examination during their first year in Grade 12. About half of Biology 30 students in 1989-90 did not take any other Grade 12 diploma science course. For those students who did take other science courses, high correlations between Chemistry 30 (0.7220), Physics 30 (0.7118) and Biology 30 examination marks suggest that the skills required for success in Biology 30 are similar to those required for success in the other sciences. Consequently, Biology 30 should not be viewed as a science course that is uniquely appropriate for students who are deficient in scientific aptitude. Furthermore, since Biology 30 is a highly descriptive science, students who register in the course should have well-developed skills in written communication.

Overall Performance

The overall performance of students who wrote the Biology 30 diploma examinations during the 1989-90 school year was satisfactory. During the past two years, a slightly larger proportion of students obtained blended marks below the *acceptable standard* than in the previous year (see Figure 2-14).

The Biology 30 diploma examinations are designed to reflect the same level of expectation each year. However, a change in the examination blueprint was introduced in 1988-89 that places greater emphasis on created responses and on the comprehension of concepts. Compared with previous years, this shift has affected the proportion of students who form the three subgroups identified above.

Figure 6-5
Distribution of Biology 30 Examination Marks
1989-90 School Year



Achievement of Standards

The Acceptable Standard

Students who failed to attain the *acceptable standard* (25.2% of the population) could neither select nor create a sufficient number of correct responses to obtain a mark of 50%. These students found it difficult to identify morphological structures represented by diagrams and then to relate the structures to functional descriptions. They lacked the ability to form generalizations/conclusions from contextual data. They were deficient in the basic knowledge of human physiology and therefore had problems arranging physiological processes in sequential order. They also found it difficult to trace the pathways that materials follow through the human body. These students lacked the understanding and skills required to compose responses to problems that involved analysis and evaluation of data. Determining cause-and-effect relationships also eluded them.

Students who attained the acceptable standard but were below the standard of excellence (55.5% of the population) were capable of selecting correct responses. However, they found it difficult to create written responses. These students were able to select correct responses to questions that evaluated the major concepts in direct ways. Questions that required multistep reasoning processes proved more difficult. Inadequate understanding of the meaning of key scientific vocabulary prevented these students from identifying correct associations between related physiological processes. This was particularly evident if the terms identified processes that occur at the molecular or ionic level. This group of students found it difficult to compose explanations for physiological phenomena in terms of sequential cause-and-effect relationships. They could interpret simple sets of data but found it difficult to draw inferences from complex data tables. They

could identify the variables in simple experimental designs but lacked the ability to evaluate complex investigations.

The Standard of Excellence

Students who attained the *standard of excellence* (19.3% of the population) did not depend on the elements of chance and intuitive guessing. They could create written responses at a level that was consistent with their ability to select correct responses.

These students could analyse multistep physiological processes and thereby clearly recognize cause-and-effect relationships. They could recall precise knowledge about human organ structure and function and could then use this knowledge to compose explanations for abnormal body conditions. They were able to trace the pathways that materials follow through the human body and arrange physiological processes in sequential order. These students could make and support predictions based on the data provided. They could evaluate experimental designs and suggest corrective procedures if errors were evident. The students in this group communicated clearly, logically and precisely in their written responses.

Student Population – Who Wrote the Examinations?

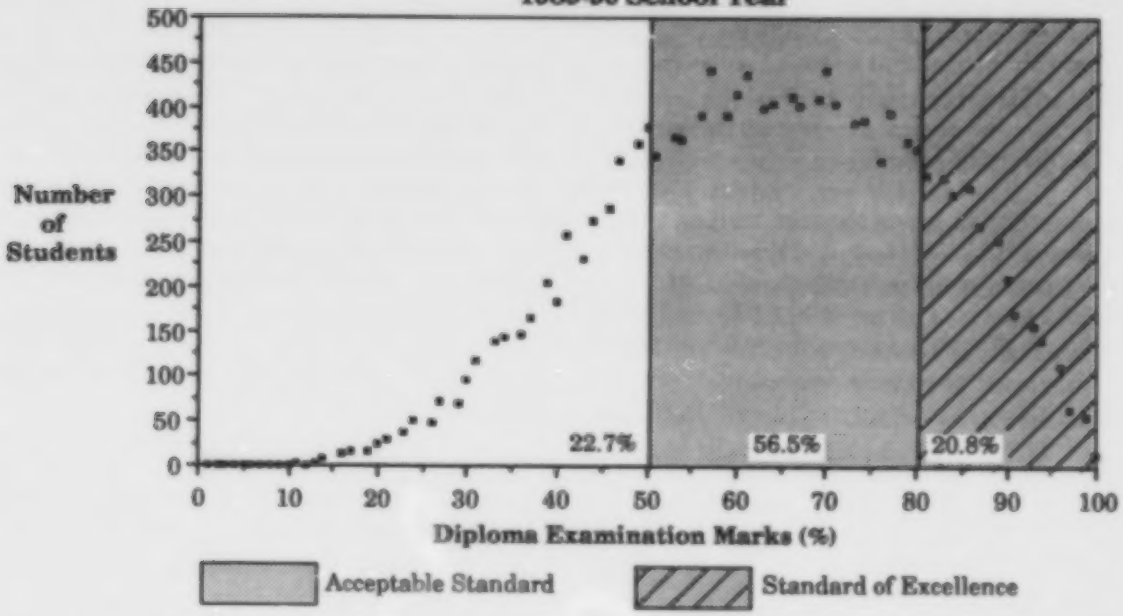
In the 1989-90 school year, almost half of the students who were enrolled in a Grade 12 English course were also enrolled in Chemistry 30. Even though this appears to meet the expected size of the target group, not all students capable of achieving the acceptable or exceptional level were enrolled in chemistry. For example, some students who were successful in Physics 30 did not take Chemistry 30. These students could be encouraged to enrol in the chemistry program with an expectation of success. Possibly the blend of students currently taking the course is not necessarily the blend for which the course is designed. This could explain, in part, the higher-than-expected failure rate.

About 10% of the students who took Chemistry 30 were not Grade 12 students registered for the first time in the course. This small group consisted of Grade 11 students, returning Grade 12 students and out-of-province transfer students. In general, the average mark of the Grade 11 group was lower than that of the Grade 12 population. This suggests that Grade 11 students should be encouraged to wait until their Grade 12 year before attempting Chemistry 30. The returning Grade 12 population did not do as well as either the Grade 11 or Grade 12 groups. In general, this group's average mark was lower than the Grade 12 population, too. The group of students who were new to Alberta did better than the Grade 12 population.

Overall Performance

The overall performance of students writing the Chemistry 30 diploma examinations during the 1989-90 school year was satisfactory and was similar to performance on previous years, even though a larger proportion of students failed to achieve the *acceptable standard* (see Figure 2-16). In 1989-90, 77.3% of the students writing Chemistry 30 attained diploma examination marks at or above the *acceptable standard*, and a significant proportion of the students, 20.8%, attained diploma examination marks at or above the *standard of excellence* (see Figure 6-6). Many of the students, 8.5%, attained marks ranging from 44% to 49%. It may be that these students would benefit from further instruction.

Figure 6-6
Distribution of Chemistry 30 Examination Marks
1989-90 School Year



Achievement of Standards

The Acceptable Standard

Students who did not attain the *acceptable standard* of performance on the Chemistry 30 Diploma Examination (22.7% of the population) had difficulty in solving stoichiometric problems other than those involving a simple single-step addition/subtraction problem such as calculating the voltage of a cell given the half-reactions. These students were also unable to transfer data to or from graphical form or to utilize data to predict trends or patterns. In general, these individuals had difficulty creating their own responses and as a result did not do well in the created response sections of the examination. They did, however, recognize correct statements about basic concepts and had the greatest success on the multiple-choice section of the examination.

Individuals who met or exceeded the acceptable standard of performance (56.5% of the population) but were below the standard of excellence were able to do stoichiometry of more than one step as long as it did not involve writing and balancing a chemical reaction equation. These students could transpose data to and from a graphical form. They successfully ranked species on the basis of their reactivity and were able to use and extract information from the data booklet tables. However, they had difficulty recognizing ratios other than 1:1 in acid-base chemistry and in solving complex stoichiometric problems. They recognized correctness of a situation for most concepts but had difficulty in explaining why something was inappropriate or incorrect.

These individuals worked best at the macroscopic level and as a result did well on the multiple-choice section of the examination. They averaged almost 50% on the created (numerical and written) response sections of the examination.

The Standard of Excellence

Students who attained the *standard of excellence* (20.8% of the population) were able to solve any stoichiometric problem and to recognize ratios of other than 1:1 in acid-base chemistry. They also recognized relationships and ratios between the solute and the resulting species, and mastered concepts such as strength and concentration. They applied their knowledge at the atomic level and therefore were able to explain situations and properties by outlining what happens on the molecular level. They applied their knowledge in new and novel situations and created a response. Students attaining the standard of excellence did well on all sections of the examination. Their work on the created response sections was better than was expected.

PHYSICS 30 EXAMINERS' SUMMARY STATEMENTS

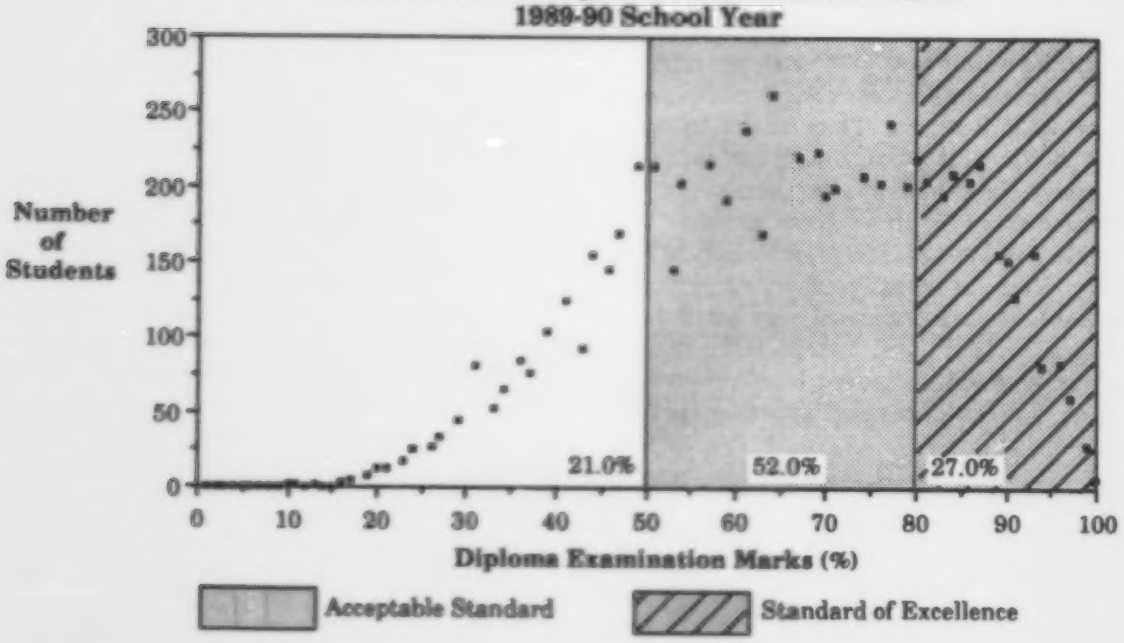
Student Population – Who Wrote the Examinations?

The Physics 30 course has learner expectations that are suitable for just under half of those Grade 12 students who enrol in a Grade 12 English course. For the 1989-90 school year, Physics 30 was taken by 25% of this Grade 12 population. This relatively low participation rate was consistent with the enrolments of previous years. For males, the participation rate was 34%, and for females it was 17%. Thus, a good source for additional Physics 30 students is the female student population. An increase in female registration should be encouraged, as a growing number of career opportunities have Physics 30 as a prerequisite for professional studies.

Overall Performance

The overall performance of students writing the Physics 30 diploma examinations during the 1989-90 school year was satisfactory (see Figure 6-7) and was consistent with performance in previous years. The number of students with examination marks at or above the *standard of excellence*, 27.0%, continued at an encouraging rate. Of those 21.0% of students who failed to reach the *acceptable standard*, about half received examination marks ranging from 40% to 49%. Many of these students scored over 50% on the multiple-choice section of the diploma examination but scored very poorly on the written-response section.

Figure 6-7
Distribution of Physics 30 Examination Marks
1989-90 School Year



Performance from Semester to Semester

Students who wrote the June 1990 examination did better than those who wrote the January 1990 examination, even though both examinations were designed to the same level of expectation. Achievement comparisons are shown in the table below.

One hypothesis that could account for these differences is the selective registration of strong students in Mathematics 31 and Physics 30 in the second semester, following registration in Mathematics 30 in the first semester. This hypothesis is currently under study.

	January 1990	June 1990
Students Achieving Acceptable Standard	88.8%	90.7%
Students Achieving Standard of Excellence	22.6%	27.6%
Diploma Examination Average	63.1%	66.4%

Achievement of Standards

The Acceptable Standard

Students attaining the *acceptable standard* could reliably state and solve only those problems that could be related quickly to an equation in the data booklet. Their laboratory skills were limited to following explicit directions and to using laboratory data to verify known physics information. These students were capable of defining and calculating quantities such as slope, refractive index, orbit radius, electric force and photoelectric work function. They tended to use item-specific methods in their problem solving and rarely used the major generalizations of physics such as Newton's Laws or the conservation laws of charge, momentum and energy. Thus, students performing near the acceptable standard showed only limited understanding of the full scope and sequence of physics. Within this restricted range of content, such students performed competently.

In the 1990 series of diploma examinations, students with final blended marks near the acceptable standard showed themselves to be over-dependent on the data booklet supplied. Those who reached the acceptable standard showed that they could use the information in the data booklet. They solved single-step problems related to data booklet equations. They were also competent in recalling essential definitions of specific concepts. They found difficulty in translating definitions into alternative forms or in judging whether a data booklet equation was valid in the range of values set in a particular problem. They found the multiple-choice section, where answers are selected, far easier than the written-response section, where answers are created. Typically, multiple-choice percentages for these students were double their written-response percentages. Those who failed to reach the acceptable standard were also over-dependent on the data booklet but failed to use it effectively even in the solution of single-step problems. They found the written-response section extremely difficult, and often scored 20% or less on this section.

The Standard of Excellence

Students attaining the *standard of excellence* showed far more flexibility and creativity than the average. They sought general methods and were not afraid to use conservation laws to solve an unusual problem. They transferred knowledge from one area of physics to another and expressed their answers in clear and concise terms. They made inferences that were not part of their "known" areas of physics. In terms of concept development, they were the only students who could make the distinction between vectors and scalars or between forces and fields. They understood the full scope and sequence of physics, and they rose to the challenges contained in physics.

In the 1990 series of examinations, students with final blended marks near the standard of excellence tended to use the data booklet as only one of a range of tools available to them. Those who were just below the standard of excellence attempted to use a range of procedures and used the data booklet in an appropriate manner. However, they had some difficulties in the solution of multistep problems, especially when a framework was not given for the solution. They needed explicit cues before they were able to use the full range of problem-solving strategies open to them. In many cases, such students could solve complex problems only when the items were expressed in a multiple-choice format. Those who reached the standard of excellence showed a willingness to use major generalizations to solve a range of problems and to seek answers that could be subjected to review. They were equally adept in selecting a response in the multiple-choice section and in creating their own responses in the written-response section. When confronted with a problem requiring the use of two or more steps, they created their own procedures for problem solution. They showed a maturity of response that will serve them well in their future studies.

APPENDIX A:
DISTRIBUTION OF STUDENTS' MARKS IN DIPLOMA EXAMINATION COURSES

January 1990 Examination Administration and January 1989 Final Course Mark*

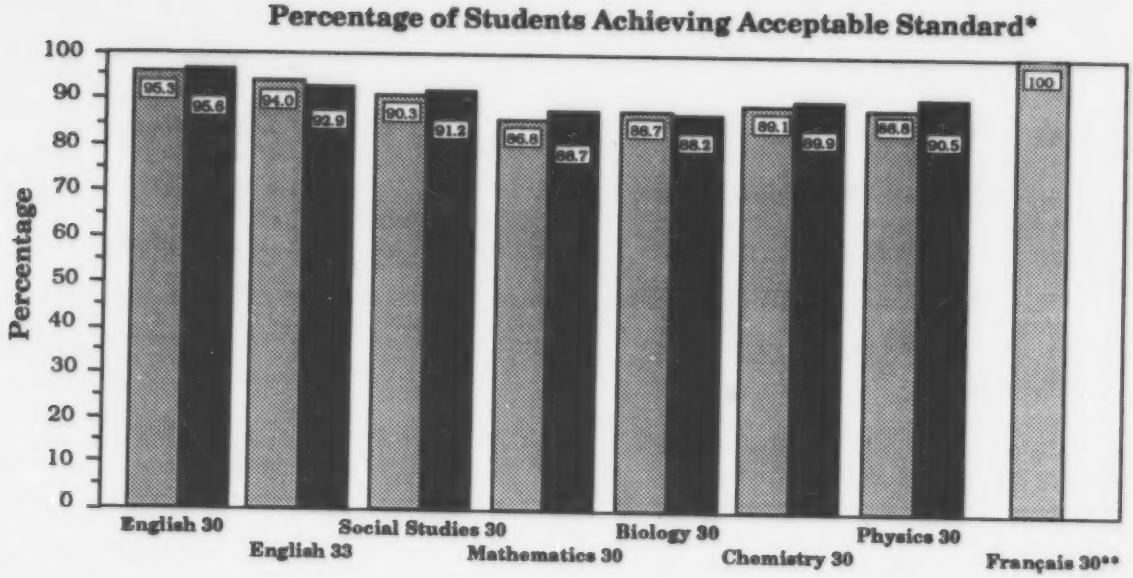
DIPLOMA EXAMINATION COURSE	School-Awarded Mark	Diploma Examination Mark	Final Blended Mark	January 1989 Final Blended Mark
ENGLISH 30			*N* = 9 241	*N* = 9 114
A (80-100%)	16.3	11.9	12.2	9.6
B (65-79%)	38.9	37.1	40.3	40.2
C (50-64%)	37.2	39.8	42.8	45.9
F (0-49%)	7.6	11.2	4.7	4.4
Mean	65.9	64.4	65.7	64.9
Standard Deviation	12.4	12.3	11.2	10.6
ENGLISH 33			*N* = 3 941	*N*= 3 955
A (80-100%)	3.9	6.7	3.8	2.8
B (65-79%)	34.4	40.8	38.2	39.0
C (50-64%)	49.9	40.5	52.0	51.0
F (0-49%)	11.8	12.0	6.0	7.1
Mean	60.9	63.2	62.5	62.3
Standard Deviation	10.9	11.6	9.6	9.7
FRANÇAIS 30			*N* = 57	*N* = n/a
A (80-100%)	28.1	22.8	19.3	n/a
B (65-79%)	63.1	47.4	66.7	n/a
C (50-64%)	8.8	29.8	14.0	n/a
F (0-49%)	0.0	0.0	0.0	n/a
Mean	74.2	70.6	72.6	n/a
Standard Deviation	7.1	10.9	8.0	n/a
SOCIAL STUDIES 30			*N* = 8 261	*N* = 8 347
A (80-100%)	16.6	13.9	14.1	13.1
B (65-79%)	36.7	30.0	34.0	36.9
C (50-64%)	39.2	34.8	42.2	41.2
F (0-49%)	7.5	21.3	9.7	8.8
Mean	65.8	62.1	64.3	64.7
Standard Deviation	12.4	14.8	12.9	12.4

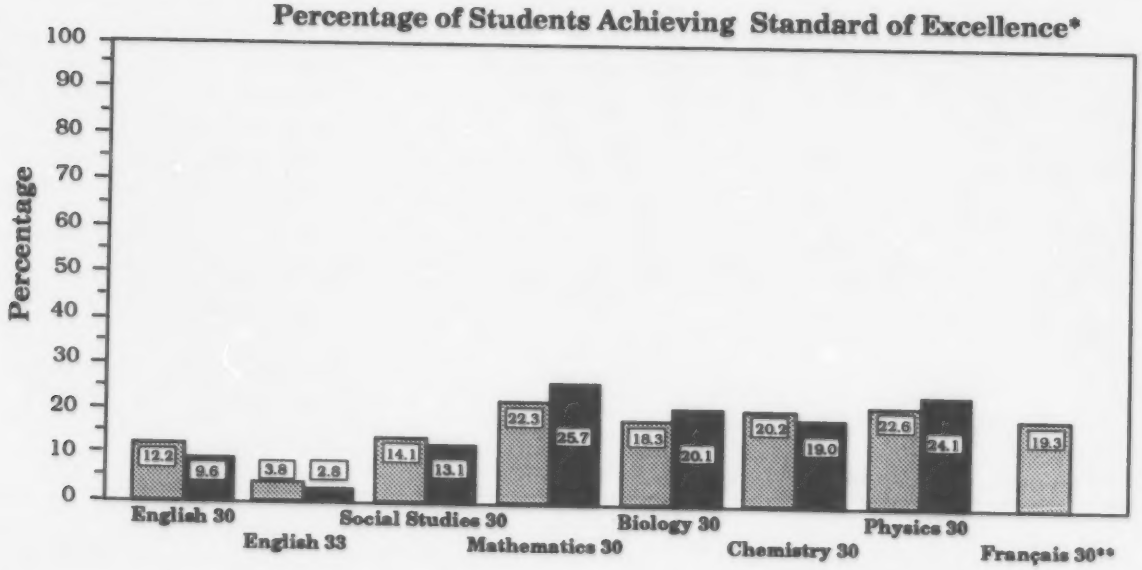
*The figures may be changed slightly as a result of appeals of school-awarded marks, rereads of diploma examinations or special cases considerations.

January 1990 (continued)

DIPLOMA EXAMINATION COURSE	School-Awarded Mark	Diploma Examination Mark	Final Blended Mark	January 1989 Final Blended Mark
MATHEMATICS 30			*N* = 8 932	*N* = 8 884
A (80-100%)	24.6	22.3	22.3	25.7
B (65-79%)	33.1	28.1	31.2	30.5
C (50-64%)	33.1	24.6	33.3	32.4
F (0-49%)	9.2	25.0	13.2	11.3
Mean	67.7	63.4	66.0	67.3
Standard Deviation	14.6	18.5	15.7	15.9
BIOLOGY 30			*N* = 8 113	*N* = 7 830
A (80-100%)	19.7	18.7	18.3	20.1
B (65-79%)	36.4	29.5	32.8	30.4
C (50-64%)	35.8	28.6	37.6	37.7
F (0-49%)	8.1	23.2	11.3	11.8
Mean	66.7	63.1	65.3	65.4
Standard Deviation	13.1	16.7	14.2	14.6
CHEMISTRY 30			*N* = 6 679	*N* = 6 986
A (80-100%)	20.9	20.6	20.2	19.0
B (65-79%)	37.4	28.9	34.6	34.8
C (50-64%)	33.5	30.7	34.3	36.1
F (0-49%)	8.2	19.8	10.9	10.1
Mean	67.3	64.1	66.1	66.0
Standard Deviation	13.4	16.6	14.3	14.0
PHYSICS 30			*N* = 3 121	*N* = 2 888
A (80-100%)	25.6	22.8	22.6	24.1
B (65-79%)	38.2	24.8	32.6	35.0
C (50-64%)	29.8	26.3	33.6	31.5
F (0-49%)	6.4	26.1	11.2	9.5
Mean	69.3	63.1	66.6	67.7
Standard Deviation	13.2	18.3	15.0	14.4

Diploma Examination Courses
Final Blended Marks
January 1990 and January 1989





* Acceptable Standard is 50% or higher
Standard of Excellence is 80% or higher
**Français 30: first administration, January 1990

1990 1989

June 1990 Examination Administration and June 1989 Final Course Mark*

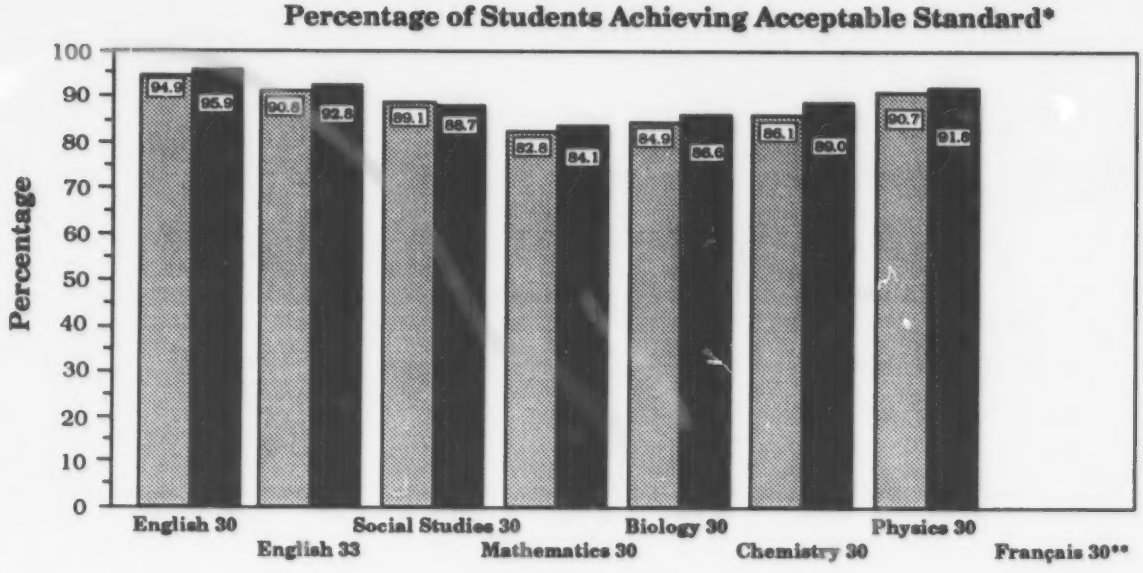
DIPLOMA EXAMINATION COURSE	School-Awarded Mark	Diploma Examination Mark	Final Blended Mark	June 1989 Final Blended Mark
ENGLISH 30			*N* = 13 506	*N* = 13 622
A (80-100%)	16.4	13.0	12.8	13.0
B (65-79%)	38.9	37.8	40.6	43.0
C (50-64%)	36.7	37.6	41.5	39.9
F (0-49%)	8.0	11.6	5.1	4.1
Mean	65.9	64.7	65.8	66.5
Standard Deviation	12.5	12.6	11.4	11.1
ENGLISH 33			*N* = 4 589	*N* = 5 226
A (80-100%)	3.7	4.7	2.3	3.6
B (65-79%)	31.0	31.3	30.3	35.0
C (50-64%)	52.1	44.2	58.2	54.2
F (0-49%)	13.2	19.8	9.2	7.2
Mean	60.0	59.8	60.3	61.8
Standard Deviation	10.9	12.0	9.6	9.8
FRANÇAIS 30			*N* = 3	*N* = n/a
A (80-100%)	Distribution of student marks is not reported			n/a
B (65-79%)	for Français 30 due to the small number of			n/a
C (50-64%)	students writing. This is the first year that the			n/a
F (0-49%)	Français 30 Diploma Examination is available.			n/a
Mean				n/a
Standard Deviation				n/a
SOCIAL STUDIES 30			*N* = 10 823	*N* =11 505
A (80-100%)	19.3	14.3	15.4	14.2
B (65-79%)	35.4	31.9	34.5	34.4
C (50-64%)	37.0	32.0	39.2	40.1
F (0-49%)	8.3	21.8	10.9	11.3
Mean	66.3	62.3	64.6	64.2
Standard Deviation	13.0	15.3	13.3	13.3

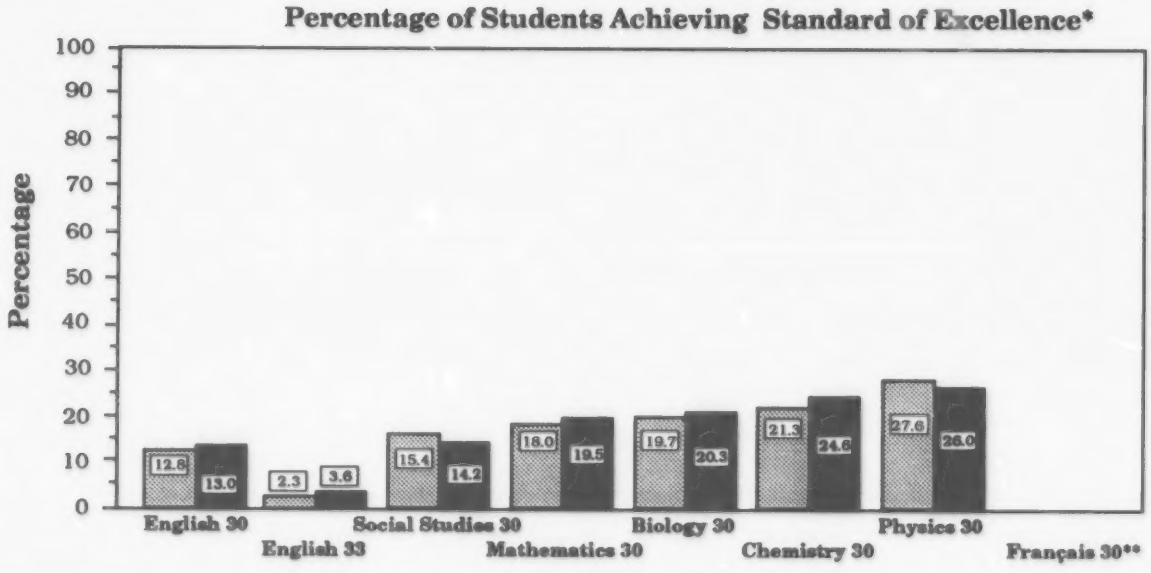
*The figures may be changed slightly as a result of appeals of school-awarded marks, rereads of diploma examinations or special cases considerations.

June 1990 (continued)

DIPLOMA EXAMINATION COURSE	School-Awarded Mark	Diploma Examination Mark	Final Blended Mark	June 1989 Final Blended Mark
MATHEMATICS 30			N = 10 098	N = 9 780
A (80-100%)	20.5	17.9	18.0	19.5
B (65-79%)	30.5	23.2	26.4	27.5
C (50-64%)	36.3	26.6	38.5	37.1
F (0-49%)	12.7	32.3	17.2	15.9
Mean	65.5	60.0	63.1	64.2
Standard Deviation	15.0	18.5	15.9	15.9
BIOLOGY 30			N = 10 591	N = 10 654
A (80-100%)	22.2	18.8	19.7	20.3
B (65-79%)	34.1	25.1	29.1	30.5
C (50-64%)	34.8	27.0	36.1	35.8
F (0-49%)	8.9	29.1	15.1	13.4
Mean	67.1	61.1	64.4	65.1
Standard Deviation	13.6	18.0	15.1	14.9
CHEMISTRY 30			N = 8 125	N = 8 684
A (80-100%)	25.8	20.1	21.3	24.6
B (65-79%)	34.7	24.2	30.5	32.4
C (50-64%)	31.3	28.1	34.3	32.0
F (0-49%)	8.2	27.6	13.9	11.0
Mean	68.5	61.8	65.5	67.3
Standard Deviation	14.2	18.4	15.6	15.3
PHYSICS 30			N = 4 768	N = 4 791
A (80-100%)	29.7	28.5	27.6	26.0
B (65-79%)	36.9	27.3	33.9	34.7
C (50-64%)	27.7	24.6	29.2	31.1
F (0-49%)	5.7	19.6	9.3	8.2
Mean	70.3	66.4	68.8	68.6
Standard Deviation	13.6	17.9	14.9	14.2

Diploma Examination Courses
Final Blended Marks
June 1990 and June 1989





1990 1989

*** Acceptable Standard is 50% or higher**
Standard of Excellence is 80% or higher
****Français 30 was first administered in January 1990. The results for June 1990 are not reported because only 3 students wrote the examination.**

APPENDIX B:
DIPLOMA EXAMINATION DEVELOPMENT PROCESS

The staff of the Student Evaluation Branch gives great care and attention to the development and marking of all dipoma examinations in order to ensure that students' marks on diploma examinations are fair and equitable measures of their achievement.

Many individuals work with the professional staff from the Student Evaluation Branch in the complex process of developing diploma examinations. These include classroom teachers, school and jurisdiction administrators and representatives from postsecondary institutions, the Curriculum Branch, Language Services Branch and Regional Offices of Education.

The examination development process follows the phases listed below:

1. PLANNING
2. APPROVING EXAMINATION BLUEPRINTS
3. DEVELOPING EXAMINATION QUESTIONS
4. CONSTRUCTING AND ADMINISTERING FIELD TESTS
5. ANALYSING AND REVISING QUESTIONS
6. CONSTRUCTING THE EXAMINATIONS
7. APPROVING THE EXAMINATIONS
8. PRINTING AND ADMINISTERING THE EXAMINATIONS
9. MARKING THE EXAMINATIONS
10. ANALYSING AND REPORTING THE RESULTS

It takes approximately 18 months to complete the development of a diploma examination.

1. PLANNING

The first step in the planning phase for development of a diploma examination is the preparation, under the direction of the Curriculum Branch, of specifications based on the goals and objectives of the curriculum for each subject.

Examination developers in each diploma examination subject area then prepare an interim examination blueprint (an overall plan used to guide the development of an examination). If a diploma examination is undergoing extensive revision because of curricular change, or if a new examination is to be developed, an advisory committee of teachers and subject consultants will contribute to decisions about the emphasis and design of the examination.

Questions that must be addressed by examination developers and advisory committees, as examinations are designed and blueprints are drafted, include:

- What knowledge and skills can students be expected to possess?
- How can the various parts of the curriculum best be tested?
- What should be the weighting for each part of the curriculum that is tested?
- How long and how demanding should the examination be?
- What format will produce the most valid results?
- What types of questions will be most valid and reliable?
  (multiple choice, short answer, extended written response?)

- How should the examination be organized in order to produce valid and reliable results?
- How will students' responses be scored? What will be the criteria for scoring?
- How should the results be reported?
- Who will receive the results?

In order to ensure that each examination is a fair and equitable measure of students' accomplishments in the course, and to ensure that results will be meaningful and reliable, examination developers incorporate statistical as well as curricular standards into the examination design.

Statistical standards include projected examination means, range of question difficulty and requirements for reporting. For example, the mean of each diploma examination has been set at 65 per cent. This is the mid-point between chance selection (25 per cent) and perfection (100 per cent) rounded off to the nearest five per cent. The range of difficulty of multiple-choice questions is expected to vary from 30 per cent to 85 per cent to ensure that students with varying ability levels are challenged. Each dimension of the curriculum for which results are reported must contain at least six questions if the results are to be meaningful.

2. APPROVING EXAMINATION BLUEPRINTS

Once examination developers and their advisory committees develop an examination design and blueprint including criteria for scoring written responses, the proposed design is reviewed by a committee of Alberta Education personnel representing Regional Offices of Education, the Curriculum Branch (or Language Services Branch) and the Student Evaluation Branch.

The blueprint and design recommended by the Alberta Education committee are then reviewed by an Examination Review Committee that consists of representatives nominated by the Alberta Teachers' Association, the Conference of Alberta School Superintendents, the Universities Co-ordinating Council, the Public Colleges of Alberta and Alberta Education. This committee makes recommendations regarding the examination design to the Director of the Student Evaluation Branch.

3. DEVELOPING EXAMINATION QUESTIONS

Following approval of the examination design, format and blueprints, examination developers plan for question development. On the recommendations of superintendents, classroom teachers from across the province are selected to work on question development committees chaired by examination developers from the Student Evaluation Branch.

Teachers serving on question development committees receive the necessary training regarding technical principles of question construction from the professional examination development staff of the Student Evaluation Branch. The teacher committees develop questions that meet the curricular and technical standards incorporated in the examination design and blueprints, and that will fairly test the skills and concepts that students can be expected to have acquired.

Questions developed in committee are then carefully screened, edited and revised so that all blueprint requirements and technical standards are met. At this point, copyright approval is sought for testing materials such as literary selections, cartoons, graphs, maps, charts, data sets, etc.

4. CONSTRUCTING AND ADMINISTERING FIELD TESTS

Examination developers at the Student Evaluation Branch construct field tests containing questions developed by teacher committees. Each field test is carefully edited and revised in order to ensure technical and curricular validity and faithfulness to the examination blueprint.

School jurisdiction personnel grant permission for the administration of field tests to students in their systems in January and/or June of each school year.

Based on the geographic and demographic variables expected for the total population that will write a given diploma examination, the Student Evaluation Branch field testing administration staff selects a minimum sample of 250 students to write each field test. Field tests are administered only to students who are nearing completion of the diploma examination subject being tested so that their performances on the field test will be predictive of the performances of students writing the diploma examination.

Student Evaluation Branch professional staff members administer the field tests under secured examination conditions. This procedure allows examination developers to receive first-hand information from teachers and students about examination questions and formats. As well, the procedure ensures test security and uniform administration conditions so that statistical results can be considered reliable.

Teachers whose classes participate in field testing comment on:

- level of difficulty of questions
- curricular validity
- appropriateness of questions, data sets, reading selections, format
- problems with questions, stimulus material, art work
- clarity of instructions
- correspondence between questions and the way in which a concept is taught

Students are also encouraged to discuss the field test with the field test administrator.

All of the data – statistical and anecdotal – from field testing provide the examination developer with accurate and first-hand information that is used to ensure that the final form of each diploma examination is a valid and reliable measure of students' achievement.

5. ANALYSING AND REVISING QUESTIONS

Examination developers carefully analyse the statistical results and teacher comments for each field test to determine the need for additional field testing. Individual questions or question sets requiring changes are revised and submitted for further field testing. If changes are not feasible, questions are discarded.

Those questions and question sets that prove successful in field testing are considered for inclusion in a diploma examination.

6. CONSTRUCTING THE EXAMINATIONS

The diploma examinations are composed of questions and/or question sets that have proven to be valid in field testing. For each diploma subject, three parallel examinations are developed annually for administration in January, June and August. The three examinations are designed to be parallel in form and equivalent in difficulty. Each examination is constructed according to the approved blueprint (i.e., each will have approximately the same number of questions testing a particular facet of the curriculum as specified by the blueprint). An information bulletin outlining the design, format and marking criteria for each diploma examination subject is distributed to schools at the beginning of each school year. The information bulletins include changes from previous years' examinations, sample questions and scoring guides.

Once a final form of a diploma examination is drafted, it receives extensive editing, proofreading and technical checking.

7. APPROVING THE EXAMINATIONS

The examination developers from the Student Evaluation Branch present the final form of each examination to the Alberta Education committee that represents the Curriculum Branch or Language Services Branch and Regional Offices of Education for review and recommendations for improvement.

The recommendations of the Alberta Education committee are incorporated into any additional revisions that are necessary. The examination developers then present the examination to the Examination Review Committee that recommended approval of the examination blueprint in Phase Two of the Examination Development Process. The Examination Review Committee conducts a thorough review of the proposed examination, and recommends approval to the Director of the Student Evaluation Branch.

8. PRINTING AND ADMINISTERING THE EXAMINATIONS

Following approval of the final form of a diploma examination, examination developers ensure completion of additional quality checks that include: editing, proofreading, validating of correct answers by a teacher committee, checking print quality of art work and illustrations, confirming precise match to the blueprint and completing a final estimate of difficulty for each question.

Each examination is printed and then distributed to schools just before the administration dates.

Schools are responsible for ensuring the security of examinations before administration, and for ensuring that examinations are administered according to regulations. Each school receives extra copies of the January and June examinations for use in the school.

Administration of diploma examinations is scheduled annually in January, June and August, and is conducted according to set regulations. Schedules and regulations are published in the *General Information Bulletin* that is distributed to schools each fall. Additional copies are available for purchase from the Learning Resources Distributing Centre (telephone 427-2767). The August examinations are confidential and therefore remain secured.

Students who have been identified as having learning and/or physical disabilities may apply for special provisions for examination writing. Included in the special provisions available to such students are the following: brailled examinations, large-print examinations, tape-recorded examinations, additional writing time, use of a word processor, use of a tape recorder for responses and use of a sign language translator. The complete policy for special provisions is printed in the *General Information Bulletin* and is available on request from the Student Evaluation Branch (telephone 427-0010). Following administration, completed examinations are shipped (in accordance with security regulations) to Alberta Education in Edmonton for processing and marking.

9. MARKING THE EXAMINATIONS

Markers for the written-response parts of the examinations are nominated by their superintendents and are selected on a proportional basis so that the percentage of markers selected from a geographic area is comparable to the percentage of papers from that area. In order to be selected for marking, a teacher must be currently teaching the subject he or she wishes to mark, must have taught the course for at least two years and must possess a valid Alberta Permanent Professional teaching certificate.

The written-response parts of the diploma examinations are all marked centrally. The selected classroom teachers are trained in the marking procedures and are supervised during the marking session by the professional staff from the Student Evaluation Branch.

All student and school identification is removed from the papers before the marking so that markers have no means of knowing the source of a paper. Written-response papers in English 30, English 33, Social Studies 30 and Français 30 receive three independent read-

ings and are scored in several categories such as quality of language and expression, thought and detail, organization, etc. Students' scores are then calculated by machine. The median score on each dimension is the score awarded. Papers receive a fourth reading on those dimensions where the original three markers' scores are not sufficiently congruent. Multiple-choice responses are machine scored. During the marking session, each multiple-choice examination is carefully reviewed by a group of at least 20 teachers of the subject under consideration. In this "standard-setting" review, the teachers assess the appropriateness of the standard of achievement built into the examinations.

10. ANALYSING AND REPORTING THE RESULTS

The statistical results of each examination and the recommendations of the standard setters are carefully analysed. The Examination Review Committee may be asked to review the results as well. Reports of local results in each subject are prepared for all school jurisdictions. The provincial results for each subject examined are presented in a provincial report that is distributed in April for the January administration and in September for the June administration The provincial reports include guidelines for interpreting results.

Individual student results are mailed about one month after the date on which the examinations were administered. Students who are dissatisfied with their results in any subject may request that their examination in that subject be rescored. The fee for rescoring is $20 per examination. The mark awarded after the rescoring supersedes the initial mark.

The "DIPLOMA EXAMINATION DEVELOPMENT PROCESS" is also available in brochure format.

For more information, call the Assistant Director of Examination Development for Language Arts and Social Studies or the Assistant Director of Examination Development for Mathematics and Sciences at 427-2948.

APPENDIX C: GUIDELINES FOR INTERPRETING AND USING THE RESULTS OF THE DIPLOMA EXAMINATIONS

Use of the Reports

In addition to this *Annual Report*, superintendents and principals receive a confidential report of results achieved by the students in their jurisdictions or schools. Superintendents may also request similar reports for instructional groups within the school jurisdiction.

Educators in each jurisdiction are encouraged to study the examination results carefully and use them to determine the strengths and weaknesses of their program and resources.

The jurisdiction, school and instructional reports may be used to help

- evaluate educational programs in each subject,
- improve the quality of educational programs,
- identify the strengths and weaknesses of the individual student, school and jurisdiction by comparing their results with provincial results.

The reports are *not* intended to be used as the basis for

- evaluating teacher performance, or
- comparing performance between or among schools.

Administrators in each jurisdiction should apply separate locally developed teacher, school and school system evaluation policies to the tasks of evaluating teacher and school performance.

The information provided in the reports is factual regarding *what* has happened. The interpretation of this information involves many complex considerations of the factors and variables that contribute to achievement.

Factors Limiting the Interpretation of Examination Results

Educators who are interpreting diploma examination results must take into account the following limitations:

1. School-awarded marks and diploma examination marks are complementary measures. The purpose of the examination is to provide a common measure of achievement for students throughout the province. School-awarded marks should reflect *all* important aspects of learning in a course, including those that cannot be measured by time-limited paper and pencil tests. Therefore, differences are to be expected between a student's school-awarded mark and that student's diploma examination mark in a subject. Any comparisons of the two marks should be restricted to group statistics for groups of reasonable size and should be made with full knowledge of the differences between the two measures.

2. The differences between provincial results and local results are affected by jurisdiction, school and group size, as well as by other factors.

3. Blended mark distributions *cannot* be directly compared to school-awarded mark distributions or to diploma examination mark distributions.

4. Factors affecting student selection of diploma examination courses vary from school to school. These factors must be considered when comparing school or jurisdiction marks with provincial marks:

   - Some schools may have a limited selection of courses. Students with weak academic records who, in other schools, would have selected nonexamination courses will find it necessary to take diploma examination courses for credits.
   - Some schools may have a policy of encouraging students to challenge any diploma examination course, which results in a higher-than-usual proportion of students taking those courses.
   - Some schools may have a policy of discouraging students with weak academic records from enrolling in particular diploma examination courses, which results in a lower-than-usual proportion of students taking those courses.

<u>Factors That May Affect Student Achievement</u>

Many factors or variables may contribute to student achievement, some of which are:

1. Environment
   - community environment
   - school environment
   - socioeconomic background
   - family circumstances

2. Student Factors
   - ability
   - attitude
   - motivation
   - aspiration
   - academic background
   - learning style

3. Resources (availability and appropriateness)
   - programs of study
   - curriculum guides
   - resource materials
   - library services
   - current textbooks
   - references

4. Instruction
   - qualifications of teachers
   - teacher experience
   - professional development
   - teacher morale
   - teaching strategies
   - hours of instruction
   - staff turnover
   - amount of homework assigned
   - communication of teacher expectations

A Systematic Approach for the Effective Use of Diploma Examination Results

Diploma examination results can be used constructively as one means of improving the quality of education. A systematic use of these results would include the following steps:

1. Comparing test results for a school or instructional group with the provincial results. Be sure that your comparisons include the
   - total test score,
   - total multiple-choice and written-response scores,
   - subscale scores for multiple-choice and written-response questions (this current administration as well as results over time), and
   - individual multiple-choice and written-response question results.
2. Noting any patterns, anomalies and/or interrelationships in the results.
3. Hypothesizing relationships between your observations and any of the factors above that may have had an effect on achievement.
4. Considering and implementing a plan that will help improve the quality of education for students.

An Administrative Model for the Effective Use of Examination Results

The following model may be useful for those who wish to develop a constructive system for interpreting diploma examination results. This model is based on work done by Medicine Hat School District #76.

Basic Principles

1. It is desirable and feasible to ask teachers and school administrators to take responsibility for analysing and using provincial test results.
2. The development of analyses statements and action plans by individual schools is a more productive and positive activity than generalizations made by an external source.
3. There are an identifiable group of factors that should be analysed and commented upon when reviewing the results of each test.
4. Subtest results are often more informative than are total test scores.
5. Generalizations should be based upon long-term data.
6. It is *not* necessarily desirable or productive to compare the marks of schools with one another.
7. Standardized tests measure a core of the program being taught. However, some skills and concepts not measured are worth teaching and learning.
8. Ensuring that there is an alignment between the objectives of the curriculum being taught and the test measures being used will increase the level of students' success.
9. Written reports, follow-up by means of written response, and occasional face-to-face meetings are useful means of ensuring that results are appropriately interpreted and used.

Suggested Content for Interpreting Individual School Results

1. Subject, name, grade level and administration date of the examination(s)

2. Number of students who wrote the examination

3. Profile of students who wrote the examination:

   - noteworthy individual characteristics
   - general or group characteristics
   - previous performance in other years

4. Retention rates: the number of students enrolled in the grade or subject in the previous two years

5. School performance as compared with district and provincial averages

6. Present school performance as compared with previous years

7. Subtest results: a discussion of how students performed on each of the subtests; possible reasons for results; and recommended action

8. Item analysis: those items where a significant number of students chose a response other than the correct answer; i.e., do the resources being used appropriately present the material being tested?

9. Program emphasis:

   - hours of instruction
   - skills and content emphasized or de-emphasized

10. Instructional practice:

    - methodology
    - curriculum fit
    - resources

11. Program objectives that are not measured by paper and pencil tests but that are worth teaching

12. Recommendations for next year: a listing that describes those actions that should continue to occur, should be enhanced or should be changed

13. Summary report: general concluding comments regarding the analysis, report, examination and recommendations

14. Name and signature of teacher or department head and principal

Suggested Procedures for Reporting

1. Teachers, department heads and/or principals analyse and prepare a written report about each administration of a diploma examination.

2. Principals review and sign the report.

3. The report is shared with central office supervisory personnel.

4. The appropriate central office supervisory personnel prepare a written response to the report and send copies of the response to the teacher, department head and principal.

5. If possible, all involved staff meet to discuss the report and the response.

6. When necessary or desirable, a more immediate analysis of specific subtest scores may be requested for a specific class, grade school or examination.

7. A sampling of the reports will be shared with the Education/Personnel Committee of the board.

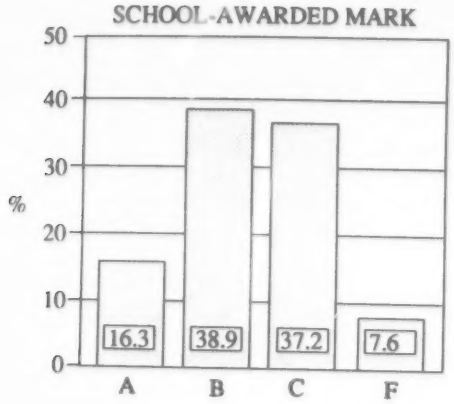
8. All reports will be used as an additional means of recognizing the quality of instruction being delivered to students. The analysis will be used to improve the program being offered and maximize the opportunities for students to be successful.

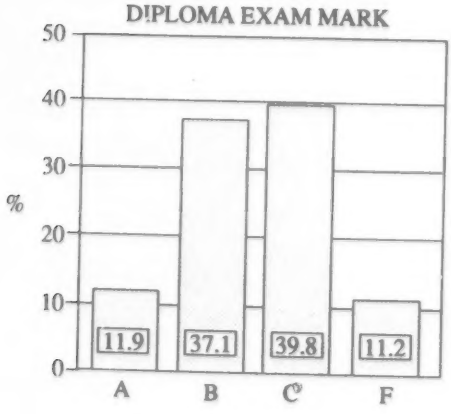
9. Where results are significantly different from those expected by the school staff, consideration should be given to arrange for a program evaluation that would measure such things as the variance between the program being offered and the specifications for an individual examination.

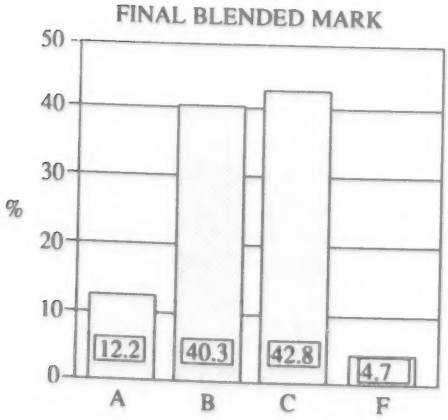
10. The report for the January and June administrations will include comprehensive retention rates for three years of the program.

APPENDIX D: EXAMINERS' REPORTS JANUARY 1990

English 30 Diploma Examinations Results January 1990







The summary information in this report is intended to provide teachers, school administrators, students, and interested others with an overview of results from the January 1990 administration of the English 30 Diploma Examination. The information will be most useful when teachers and administrators use it in conjunction with the detailed school and jurisdiction reports that have been mailed to school jurisdiction offices. An annual provincial report containing a detailed analysis of the combined January and June results will be distri' .ted in the fall of 1990.

DESCRIPTION OF THE EXAM

The English 30 Diploma Examination consists of two parts: a written-response section worth 50% of the total examination mark and a multiple-choice section worth 50% of the total examination mark.

ACHIEVEMENT OF STANDARDS

The information reported is based on the final blended marks achieved by 9 241 students who wrote the January 1990 English 30 Diploma Examination.

- 95.3% of these students achieved the acceptable standard (a final blended mark of 50% or higher).
- 12.2% of these students achieved the standard of excellence (a final blended mark of 80% or higher).

PROVINCIAL AVERAGES

- The average school-awarded mark was 65.9%.
- The average diploma exam mark was 64.4%.
- The average final blended mark, representing an equal weighting on the diploma and school marks, was 65.7%.

PART A: WRITTEN RESPONSE

The Part A: Written Response diploma examination in English 30 is written at a different time from the Part B: Reading (Multiple Choice) diploma examination and contributes 50% of the total examination mark. Students are required to write two separate assignments, each of which assesses a variety of writing and thinking skills.

The results for Part A: Written Response are most clearly understood in the context of the assignments and the scoring descriptors, and are best interpreted by considering the percentage of students achieving at (3) SATISFACTORY or better. Satisfactory work that meets the standards expected is described in the scoring guide. Complete scoring guides are available in the *Grade 12 Diploma Examinations Program Bulletin: English 30 & English 33: 1989-90 School Year (August 1989).*

The table below outlines the requirements for each assignment, the categories for scoring each assignment, the amount each of those categories contributes to the total examination mark (Parts A and B combined), and the percentage of students achieving at the various levels of expectation.

PART A: WRITTEN-RESPONSE BLUEPRINT and PERCENTAGE DISTRIBUTION OF RESULTS

DESCRIPTION OF THE WRITING ASSIGNMENT	SCORING CATEGORY	PROPORTION OF TOTAL MARK (%)	PERCENTAGE DISTRIBUTION OF SCORES					
			(5) EXCELLENT	(4) PROFICIENT	(3) SATISFACTORY	(2) LIMITED	(1) POOR	(0) INS
Minor Assignment The student is required to offer a personal response to the reading selection provided in the examination.	1. Thought and Detail	7.5	2.7	25.4	54.6	15.8	1.2	0.2
	2. Writing Skills	7.5	2.4	25.1	59.2	12.0	1.0	0.2
Major Assignment The major assignment maintains a thematic connection to the minor assignment. The student is required to demonstrate an appreciation of literary works studied through a discussion of theme and the literary techniques that support that theme. The student is also required to synthesize thoughts clearly and correctly in writing.	1. Total Impression	5.0	2.2	17.4	54.3	24.6	1.4	0.2
	2. Thought and Detail	12.5	2.5	18.1	44.8	32.0	2.3	0.2
	3. Organization	7.5	2.4	19.5	58.5	18.4	1.0	0.2
	4. Matters of Choice	5.0	2.7	20.8	58.8	16.1	1.5	0.2
	5. Matters of Convention	5.0	3.8	26.1	51.8	16.3	1.8	0.2

Note: The shaded portion represents the percentage of students who achieved or exceeded a SATISFACTORY level of performance.

EXAMINERS' COMMENTS

According to many teachers, students writing the January 1990 English 30 Diploma Examination Part A: Written Response were generally reassured by, and even enthusiastic about, the literary passage serving as a stimulus to the PERSONAL RESPONSE TO LITERATURE assignment. "The White Knight" allegory elicited more abstract, philosophical personal responses, however, than detailed personal anecdotes. Many students responded to the assignment by explaining the meaning of a "brief quotation" rather than by explaining why the quotation was meaningful. All of these responses were legitimate, given the actual wording of the assignment. Teacher markers commented, however, that writing was more lively when students wrote about personal experiences. Abstract, philosophical writing requires vivid, concrete illustration if effective communication is to result.

The Major Assignment, LITERATURE COMPOSITION, was quite manageable for most students. Students appeared to gain confidence in their understanding of the process of self-discovery from writing about "The White Knight" selection on the Minor Assignment.

EXAMINERS' COMMENTS (continued)

Almost all the students were able to select one or two works of literature as appropriate illustrations of the Major Assignment topic and were able to describe a character who had experienced self-discovery. Students receiving average scores usually discussed the literature by outlining the chronological actions of the chosen character. However, they rarely made reference to the author's ideas about self-discovery. Even students who achieved below the acceptable standard demonstrated an understanding of the concept of "self-discovery". Their literary interpretations may have been incomplete or superficial but were usually clearly related to the assignment.

Students who achieved the standard of excellence were those who went beyond merely relating details from literature to the assignment. These students were able to formulate thoughtful thesis statements that reflected a distillation of the author's ideas about self-discovery. They developed their theses with insightful, carefully chosen details, and they wrote unified discussions of the controlling thesis.

Student essays at or above the standard of excellence were characterized by a strong sense of voice, a voice that communicated confidence, thoughtfulness, and understanding through control of the subtleties that reflect students' understanding of nuances of meaning and emotional layers of language.

RESULTS

Results are in average raw scores.

Total Part B: 47.4 out of 70

Subtest Results:*

- Course content
  - Meanings: 21.0 out of 30
  - Critical Response: 16.4 out of 24
  - Human Experience and Values: 10.2 out of 16

* Readers are cautioned NOT to compare subtest results because the subtests are not of equal difficulty. Readers should compare these provincial subtest results with their own school results.

PART B: READING (MULTIPLE CHOICE)

EXAMINATION BLUEPRINT

Part B: Reading (Multiple Choice) has a value of 70 marks, one mark for each multiple-choice question. Each question is classified in two ways: according to the thinking (process) skill demanded by the question and according to the curriculum content area being tested. The examination blueprint illustrates the distribution of questions in January 1990 according to these classifications.

Question Type by Course Content	Question Type by Thinking Skills			Examination Emphasis (%)
	Literal Understanding	Inference and Application	Evaluation	
Meanings	5, 13, 29, 41, 44, 67	1, 4, 11, 12, 16, 17, 21, 38, 39, 43, 50, 51, 53, 57, 59, 60, 61, 62	7, 9, 26, 27, 42, 58	30 items (22%)
Critical Response	14	3, 6, 10, 15, 19, 20, 23, 24, 25, 28, 35, 36, 45, 46, 47, 49, 56, 68	2, 8, 33, 52, 55	24 items (17%)
Human Experience and Values		22, 30, 32, 34, 40, 54, 64, 65, 70	18, 31, 37, 48, 63, 66, 69	16 items (11%)
Examination Emphasis (%)	7 items (5%)	45 items (32%)	18 items (13%)	70 items (50%)

RESULTS (continued)

The following table shows question-by-question results and the keyed answer. There is a parallel table in the school and jurisdiction reports showing the percentage of students selecting each alternative. From this table, teachers can determine areas of strength and weakness in the achievement of their students relative to the province as a whole and, consequently, areas of strength and weakness in their programs.

QUES.	KEY	DIFF.*	QUES.	KEY	DIFF.	QUES.	KEY	DIFF.	QUES.	KEY	DIFF.	QUES.	KEY	DIFF.
1	B	66.5	15	D	66.4	29	B	57.7	43	B	76.3	57	D	72.1
2	A	87.9	16	B	79.4	30	A	53.1	44	B	72.9	58	A	52.2
3	C	58.6	17	B	73.8	31	A	68.3	45	C	64.2	59	C	70.3
4	A	57.8	18	C	67.8	32	B	36.1	46	D	62.3	60	D	69.7
5	C	65.4	19	B	68.2	33	D	57.0	47	C	62.6	61	B	80.4
6	C	70.1	20	D	72.9	34	C	86.1	48	A	67.1	62	D	67.8
7	D	72.4	21	A	79.9	35	C	37.4	49	C	68.1	63	B	63.6
8	D	70.1	22	A	59.5	36	B	74.8	50	A	85.1	64	D	61.3
9	A	70.6	23	A	80.1	37	D	48.8	51	D	73.8	65	B	71.8
10	A	72.4	24	D	72.1	38	C	72.5	52	A	61.5	66	B	74.1
11	B	88.3	25	B	87.3	39	C	86.6	53	A	75.8	67	C	61.0
12	A	65.4	26	D	72.2	40	A	54.4	54	C	78.9	68	A	72.4
13	D	54.0	27	D	59.8	41	C	49.4	55	C	57.7	69	B	56.0
14	D	48.1	28	C	83.1	42	D	66.4	56	C	74.2	70	D	68.3

*Difficulty -- percentage of students answering the question correctly

EXAMINERS' COMMENTS

Part B: Reading (Multiple Choice) is designed to test a variety of important skills. Students receiving credit in English 30 are expected to have developed a wide range of critical reading skills, to have acquired a vocabulary that enables them to read and to understand both traditional and contemporary literary works and nonfiction such as that required of students advancing to postsecondary studies, and to have developed an understanding of the technical aspects of literature and the English language. Students are expected to show an ability to draw inferences from their reading and to understand material that relies on metaphor and symbol for meaning. Thus, students who perform best on the examination read the selections closely, imagining the world created by the writer. They read the questions and alternative answers very carefully, checking the text to confirm their choice of answer.

Student performance on Part B: Reading (Multiple Choice) of the January 1990 English 30 Diploma Examination was generally satisfactory. The following questions have been selected for discussion to illustrate some of the decisions (good and bad) that students made in responding and to show some of the skills and background knowledge necessary for success. Achievement on these questions reveals how students achieving at or above the standard of excellence on Part B: Reading (Multiple Choice) apply thinking skills rather than giving only cursory or superficial consideration to the task set by the question. References to the standard of excellence and the acceptable standard refer to achievement on Part B: Reading (Multiple Choice) only, unless otherwise noted.

Questions

29. When Lucius says "We are quits now, as to killing -- you and I" (lines 34-35), he means that

A. he is weary of strife and bloodshed
*B. both he and Caesar are responsible for murder
C. he believes Ptolemy ordered Pothinus to be killed
D. both he and Caesar are responsible for seeking peace

Comments

Question 29: Students who correctly answered this question understood the purpose of all details in a given passage of literature; in this case, an excerpt from the play *Caesar and Cleopatra*. The list of characters and the stage directions provide the information necessary to answer this question correctly. 74.1% of all students achieving the standard of excellence on the whole examination were successful on this question.

Only 45.3% of those achieving at or below the acceptable standard on the examination answered correctly. This distribution suggests that high achieving students easily met the expectation of the question in that they attended to several details when drawing conclusions.

EXAMINERS' COMENTS (continued)

Questions

33. In comparing the remarks of Britannus and Caesar on the subject of punishment (lines 58-60 and 65-77), the MOST SIGNIFICANT difference is that

A. Britannus seeks glory, Caesar seeks peace
B. Britannus is sentimental, Caesar is hardened
C. Britannus has a sensitive social conscience, Caesar does not
*D. Britannus believes in absolutes, Caesar recognizes their peril

35. In which of the following quotations does the speaker use verbal irony?

A. "He is as dead as Pompey" (line 34)
B. "he insulted me -- me, the Queen" (line 48)
*C. "I am only a dreamer" (lines 85-86)
D. "Caesar's head is ripe" (line 131)

37. Rufio is characterized as being MAINLY

A. opinionated and seeking recognition
B. respectful to and admiring of Caesar
C. impressed by and attracted to Cleopatra
*D. self-serving, concerned for his own welfare

Comments

Question 33 required that students make a judgment demanding a high degree of refinement. Only 57% of all students were successful by choosing D. However, 84.1% of the students who achieved the standard of excellence on the examination as a whole chose the correct answer. As many as 35% of low scoring students chose A, perhaps because they failed to recognize in this context what "SIGNIFICANT" meant or because they found such judgments very difficult to make. The statistical distributions show that for the low achieving group, there was almost equal appeal of alternatives B and C, with only 29.3% selecting D.

These results reflect expectations that close reading and refined judgments are not easily achieved. Students answering correctly have demonstrated that they can confirm judgments by checking the text and that they can determine characters' motives from characters' words in demanding and subtle literature.

Question 35 required that students understand the subtleties of figurative language. Only 37% of all students correctly chose C as the answer. Results indicate, however, that students achieving the standard of excellence on the examination as a whole understood the difference between an extended metaphor and verbal irony, a requirement not unreasonable for all students successfully completing English 30. 63% of the students achieving the standard of excellence on the whole examination answered correctly, indicating that they have these required skills.

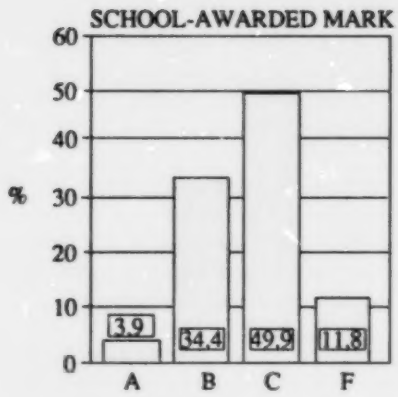
Success on the question also depended heavily upon skill in close reading. Students could recognize the irony of Caesar's comment to Cleopatra, "I am only a dreamer", if they remembered Cleopatra's earlier rebuke, "I am not Julius Caesar the dreamer" (line 43). Alternative A is a statement of fact, not a figurative statement, and alternative B, although forceful, is also a literal statement.

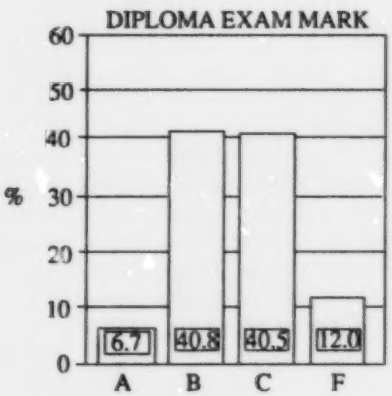
Students who were unsuccessful on the examination as a whole or who achieved just the acceptable standard appeared not to have either the background knowledge about metaphor and irony or the close reading skills required for success on this question. These students appeared to have guessed: 28% selected A, 25% selected C, and 33% selected D. Slightly fewer selected B.

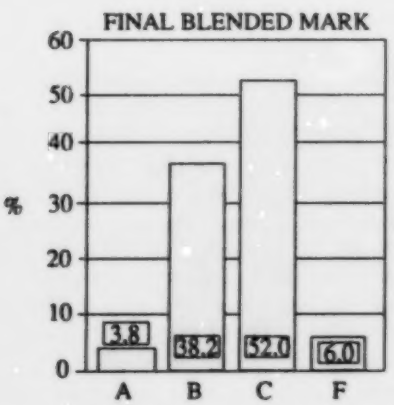
The entire excerpt from *Caesar and Cleopatra* demanded a high level of reading skill. Question 37 is one of several questions that required an awareness of a range of speaker tone: arrogance, fear, contempt, resignation, admiration. 69.4% of the students achieving the standard of excellence on the whole examination answered correctly, indicating that they were able to recognize the selfishness behind Rufio's admiration of Cleopatra, and the fear that gives rise to his subsequent contempt of her; 19.5% of the high scoring students chose alternative B, indicating that they failed to recognize the irony in Rufio's responses. It is not surprising that students unsuccessful on the examination as a whole or achieving just at the acceptable standard appeared to have guessed: 22.2% selected A, 31.7% selected B, and 14.9% selected C. Alternatives A, B, and C all contain a measure of correctness. Less successful students were not able to make the demanding judgment required.

For further information, contact Elana Scraba or Gail Gates at the Student Evaluation Branch, 427-2948.

English 33 Diploma Examination Results
January 1990







The summary information in this report is intended to provide teachers, school administrators, students, and interested others with an overview of results from the January 1990 administration of the English 33 Diploma Examination. The information will be most useful when teachers and administrators use it in conjunction with the detailed school and jurisdiction reports that have been mailed to school jurisdiction offices. An annual provincial report containing a detailed analysis of the combined January and June results will be distributed in the fall of 1990.

DESCRIPTION OF THE EXAM

The English 33 Diploma Examination consists of two parts: a written-response section worth 50% of the total examination mark and a multiple-choice section worth 50% of the total examination mark.

ACHIEVEMENT OF STANDARDS

The information reported is based on the final blended marks achieved by 3 941 students who wrote the January 1990 English 33 Diploma Examination.

- 94.0% of these students achieved the acceptable standard (a final blended mark of 50% or higher).
- 3.8% of these students achieved the standard of excellence (a final blended mark of 80% or higher).

PROVINCIAL AVERAGES

- The average school-awarded mark was 60.8%.
- The average diploma exam mark was 63.2%.
- The average final blended mark, representing an equal weighting on the diploma and school marks, was 62.5%.

PART A: WRITTEN RESPONSE

The Part A: Written Response diploma examination in English 33 is written at a different time from the Part B: Reading (Multiple Choice) diploma examination and contributes 50% of the total examination mark. Students are required to write three separate assignments, each of which assesses a variety of writing and thinking skills.

The results for Part A: Written Response are most clearly understood in the context of the assignments and the scoring descriptors, and are best interpreted by considering the percentage of students achieving at (3) ADEQUATE or better. Adequate work that meets the standards expected is described in the scoring guide. Complete scoring guides are available in the *Grade 12 Diploma Examinations Program Bulletin: English 30 & English 33: 1989-90 School Year (August 1989).*

The table below outlines the requirements for each assignment, the categories for scoring each assignment, the amount each of those categories contributes to the total examination mark (Parts A and B combined), and the percentage of students achieving at the various levels of expectation.

PART A: WRITTEN-RESPONSE BLUEPRINT and PERCENTAGE DISTRIBUTION OF RESULTS

DESCRIPTION OF THE WRITING ASSIGNMENT	SCORING CATEGORY	PROPORTION OF TOTAL MARK (%)	PERCENTAGE DISTRIBUTION OF SCORES					
			(5) PROFICIENT	(4) CAPABLE	(3) ADEQUATE	(2) LIMITED	(1) POOR	(0) INS
Personal Response to Literature The student is required to discuss an aspect of literature from a personal perspective.	1. Thought and Detail	10.0	1.9	23.5	57.2	16.0	1.2	0.2
	2. Organization	5.0	1.6	25.7	60.1	11.7	0.6	0.2
	3. Matters of Choice	5.0	2.4	24.1	60.2	11.8	1.3	0.2
	4. Matters of Convention	5.0	4.1	33.0	45.9	14.4	2.5	0.2
Functional Writing The assignment is functional in nature. The student is required to write within a given situation or context.	1. Thought and Detail	10.0	2.7	25.9	57.4	12.4	1.2	0.5
	2. Organization	2.5	2.5	26.8	59.1	10.5	0.6	0.5
	3. Writing Skills	2.5	3.2	27.6	51.2	15.4	2.1	0.5
Response to Visual Communication The writing assignment is connected to one or more photographs and/or cartoons. The student is required to write about main ideas and techniques of visual communication.	1. Thought and Detail	5.0	1.7	14.6	48.3	30.6	2.9	2.0
	2. Organization	2.5	1.7	13.9	54.4	26.1	2.0	2.0
	3. Writing Skills	2.5	2.3	20.6	53.2	19.0	3.0	2.0

Note: The shaded portion represents the percentage of students who achieved or exceeded an ADEQUATE level of performance.

EXAMINERS' COMMENTS

On English 33 Part A: Written Response, students are expected to express ideas clearly, thoughtfully, and coherently. The development of ideas with supporting detail is an expectation of all three writing assignments. Students are also expected to demonstrate effective diction and syntax, and control of grammar and mechanics.

Most students understood and responded satisfactorily to all three assignments on the January 1990 Part A: Written Response examination. A majority of students chose to describe a personal anecdotal experience in response to the PERSONAL RESPONSE TO LITERATURE assignment. As well, most students expressed an opinion, as the assignment required. Some students, however, wandered from their stated opinions while developing their ideas. Even though maintaining unity in compositions is taught throughout the secondary grades, students appear to need more work on this organizational feature, linked as it is to control of thought. Students should also plan ideas before writing in order to subordinate details to main ideas and to eliminate extraneous or digressive information.

Most students produced satisfactory work on the FUNCTIONAL WRITING assignment, which required students to write a letter that presented a convincing argument. Students who scored the highest marks invented plausible details to give substance to their persuasion. They addressed the topic directly, used clear and direct language, and included arguments to support their point of view. Less successful students merely used, without elaboration, information supplied in the question, or they provided too little support for their arguments. In all the writing assignments, markers rewarded students for clarity of thought expressed in direct and correct language.

Achievement on the RESPONSE TO VISUAL COMMUNICATION assignment has improved considerably in recent examination administrations, although many students still have difficulty organizing their ideas coherently. Students who did well chose a general idea suggested by the picture and showed how this general idea was created by details selected and arranged by the photographer. These students often began by noting those features that provided contrast or tension. In general, students are writing more substantial, higher quality compositions in this section of the examination.

PART B: READING (MULTIPLE CHOICE)

EXAMINATION BLUEPRINT

Part B: Reading (Multiple Choice) has a value of 70 marks, one mark for each multiple-choice question. Each question is classified in two ways: according to the thinking (process) skill demanded by the question and according to the curricular content area being tested. The examination blueprint illustrates the distribution of questions in January 1990 according to these classifications. It is important to note that one multiple-choice question was deleted after a review of question statistics.

Question Type by Course Content	Question Type by Thinking Skills			Examination Emphasis (%)
	Literal Understanding	Inference and Application	Evaluation	
Meanings	49, 60, 61, 69	7, 10, 13, 14, 15, 16, 22, 26, 45, 51, 52, 54, 56, 62, 63, 64, 65	20, 30, 67, 70	25 items (18%)
Relationships: Form and Content	46	1, 8, 9, 11, 17, 18, 25, 28, 47, 59, 66, 68	12, 44, 50	16 items (11.5%)
Human Experience and Values		2, 3, 4, 5, 19, 21, 23, 24, 27, 29, 48, 58	6, 53, 55, 57*	16 items (11.5%)
Life Skills	34, 35, 37, 42	38, 41	31, 32, 33, 36, 39, 40, 43	13 items (9%)
Examination Emphasis (%)	9 items (6%)	43 items (31%)	18 items (13%)	70 (50%)

*Question 57 was deleted from the examination.

RESULTS

Results are in average raw scores.

Total Part B: 44.4 out of 69

Subtest Results:*

- Course content
  - Meanings: 16.1 out of 25
  - Relationships: Form and Content: 10.8 out of 16
  - Human Experience and Values: 9.3 out of 15
  - Life Skills: 8.1 out of 13

* Readers are cautioned NOT to compare subtest results because the subtests are not of equal difficulty. Readers should compare these provincial subtest results with their own school results.

RESULTS (continued)

The following table shows question-by-question results and the keyed answer. There is a parallel table in the school and jurisdiction reports showing the percentage of students selecting each alternative. From this table, teachers can determine areas of strength and weakness in the achievement of their students relative to the province as a whole and, consequently, areas of strength and weakness in their programs.

QUES.	KEY	DIFF.*	QUES.	KEY	DIFF.	QUES.	KEY	DIFF.	QUES.	KEY	DIFF.	QUES.	KEY	DIFF.
1	A	58.2	15	D	76.7	29	C	69.5	43	A	59.3	57	Question Deleted	
2	B	57.6	16	D	49.4	30	A	69.3	44	B	57.5	58	B	80.6
3	C	42.9	17	A	66.0	31	C	87.6	45	B	81.5	59	C	68.2
4	D	66.5	18	B	71.2	32	D	46.8	46	A	66.0	60	D	56.8
5	B	35.4	19	D	73.2	33	D	58.8	47	A	73.8	61	A	54.2
6	A	50.4	20	B	48.4	34	A	54.7	48	C	72.4	62	A	62.6
7	D	64.5	21	C	76.7	35	B	63.4	49	B	80.5	63	B	70.9
8	C	70.6	22	A	74.5	36	C	77.7	50	A	74.6	64	C	58.0
9	C	81.9	23	B	82.4	37	C	85.0	51	B	56.9	65	D	73.8
10	C	78.8	24	D	65.6	38	A	54.5	52	A	69.4	66	B	44.5
11	D	79.8	25	B	73.8	39	D	57.8	53	D	58.9	67	A	40.8
12	B	78.7	26	C	76.3	40	C	68.4	54	C	59.4	68	D	62.1
13	D	55.0	27	D	63.3	41	B	30.0	55	A	42.3	69	D	45.9
14	A	74.8	28	C	59.7	42	C	72.9	56	C	76.4	70	C	59.5

*Difficulty -- percentage of students answering the question correctly

EXAMINERS' COMMENTS

Part B: Reading (Multiple Choice) is designed to test a variety of important skills. Students receiving credit in English 33 are expected to have developed a wide range of reading skills, to have acquired a vocabulary that enables them to read and to understand material meant for a general audience, and to have developed some understanding of the technical aspects of literature and the English language. Students are expected to show an ability to draw inferences from their reading and to understand material that relies on metaphor and symbol for meaning. Thus, students who perform best on the examination read the selections closely, imagining the world created by the writer. They read the questions and alternative answers very carefully, checking the text to confirm their choice of answer.

Student performance on Part B: Reading (Multiple Choice) of the January 1990 English 33 Diploma Examination was generally satisfactory. The following questions have been selected for discussion to illustrate some of the decisions (good and bad) that students made in responding and to show some of the skills and background knowledge necessary for success. Achievement on these questions reveals how students achieving at or above the standard of excellence on Part B: Reading (Multiple Choice) apply thinking skills rather than giving only cursory or superficial consideration to the task set by the question. References to the standard of excellence and the acceptable standard refer to achievement on Part B: Reading (Multiple Choice) only, unless otherwise noted.

Questions

57. Willey and Szekely differ MOST in their attitude toward

    A. making profits
    *B. the role of women
    C. leaving business to chance
    D. the importance of social status

Comments

Based on a careful review of question 57 and discussion with teachers, it was decided that the question exceeded expectations for English 33 students, and the question was deleted. Even students performing at the excellent level could not answer the question correctly. Students had to read beyond the words spoken by characters in a play in order to infer the motivation for the characters' actions and the attitudes underlying the characters' behaviors. After comparing the characters' attitudes, students then had to choose an answer that illustrated a topic about which the two characters' attitudes differed most.

EXAMINERS' COMMENTS (continued)

Questions

41. Robin's composition would be strengthened if paragraph 3 were

    A. developed fully
    *B. deleted entirely
    C. included elsewhere
    D. rearranged structurally

Comments

Students found question 41 very difficult (30% answered correctly). Generally, those students who achieved at or beyond the standard of excellence selected the correct response. However, a number of high scoring students, along with those achieving below the acceptable standard, chose alternative A, which was an incorrect response.

The purpose of Robin's composition is to provide information about Robin's motivation and commitment to the volunteer program. The document introduction and Robin's introductory paragraph make this purpose clear. The document introduction states "in order for Robin to apply as a volunteer for the Community Support Program, she is required to submit a composition providing information about her motivation and commitment to the program." In paragraph 1, Robin states, "I strongly support the idea that you get what you give. This is what has motivated me to commit myself to becoming a volunteer for the Community Support Program." Because paragraph 3 (the subject of question 41) is about inappropriate motivation for volunteers, the information detracts from the purpose of the composition. Developing the paragraph more fully would further detract from the unity and emphasis of the composition.

In order to answer the question correctly, students must think about the ideas that are to be included in the composition and make judgments about information that is irrelevant to the writer's purpose or that diminishes the writer's purpose by digression. English 33 students are expected to understand the relationship between the writer's purpose and the ensuing text in the writing of others and in their own work.

66. The description of the highway of exploration as "pock-marked with craters" (line 69) is effective because of the writer's use of

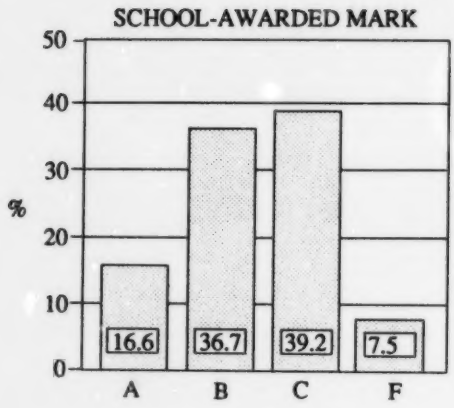
    A. simile
    *B. metaphor
    C. alliteration
    D. exaggeration

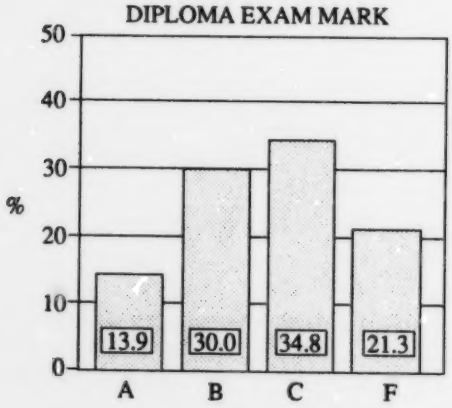
Students found question 66 somewhat difficult. Only 44.5% of the students chose the correct answer. As high as 19% of the students achieving at or above the standard of excellence incorrectly chose "simile". Although 61% of these students answered correctly, students achieving below the acceptable standard guessed between alternatives C and D. This question demanded an understanding of the definition of basic literary concepts and the exercise of judgment about which concept the quotation from the reading selection illustrated. It is expected that English 33 students be aware of the language of the discipline. It is a reasonable expectation for students to know and apply the concepts of "simile", "metaphor", "alliteration", and "exaggeration", as the question demanded.

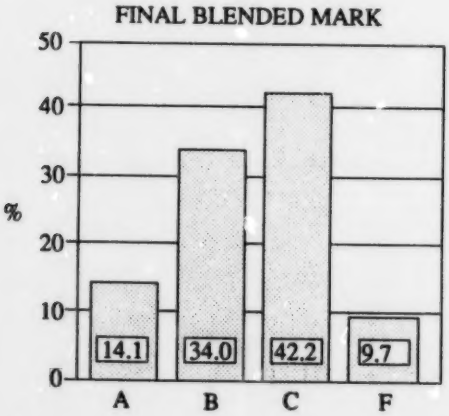
Students who achieved at or above the standard of excellence on the examination as a whole demonstrated that they consistently read the selections and all parts of each question carefully and thoughtfully. Statistical results indicate that students who verify their answers by checking the text are usually successful.

For further information, contact Elana Scraba or Gloria Malick at the Student Evaluation Branch, 427-2948.

Social Studies 30 Diploma Examination Results
January 1990







The summary information in this report is intended to provide teachers, school administrators, students, and interested others with an overview of results from the January 1990 administration of the Social Studies 30 Diploma Examination. The information will be most useful when teachers and administrators use it in conjunction with the detailed school and jurisdiction reports that have been mailed to school jurisdiction offices. An annual provincial report containing a detailed analysis of the combined January and June results will be distributed in the fall of 1990.

DESCRIPTION OF THE EXAM

The Social Studies 30 Diploma Examination consists of two parts: a multiple-choice section worth 70% of the total examination mark and a written-response section worth 30% of the total examination mark.

ACHIEVEMENT OF STANDARDS

The information reported is based on the final blended marks achieved by 8 260 students who wrote the January 1990 Social Studies 30 Diploma Examination.

- 90.3% of these students achieved the acceptable standard (a final blended mark of 50% or higher).
- 14.1% of these students achieved the standard of excellence (a final blended mark of 80% or higher).

PROVINCIAL AVERAGES

- The average school-awarded mark was 65.8%.
- The average diploma exam mark was 62.1%.
- The average final blended mark, representing an equal weighting on the diploma and school marks, was 64.3%.

PART A: MULTIPLE CHOICE

RESULTS

Results are in average raw scores.

Total Part A: 45.8 out of 70

Subtest Results Part A:*

•Course content
- -Political and Economic Systems: 22.3 out of 35
- -Co-operation and Conflict Among States: 22.3 out of 35

•Thinking Skills
- -Inquiry Skills A: 3.7 out of 6
  Students must demonstrate ability to identify and focus on the issue and to formulate research questions.
- -Inquiry Skills B: 11.2 out of 18
  Students must demonstrate ability to interpret, organize, and synthesize data.
- -Inquiry Skills C: 3.8 out of 6
  Students must demonstrate ability to resolve issues, to apply decisions, and to evaluate the decision, process, and action.
- -Recall and Comprehension: 21.4 out of 32
  Students must demonstrate ability to recall and recognize facts and to understand generalizations.
- -Value Concepts and skills: 5.7 out of 8
  Students must recognize and analyse conflicts of competing values.

* Readers are cautioned NOT to compare subtest results because the subtests are not of equal difficulty. Readers should compare these provincial subtest results with their own school results.

EXAMINATION BLUEPRINT PART A: MULTIPLE CHOICE

Part A: Multiple Choice has a value of 70 marks, one mark for each multiple-choice question. Each question is classified in two ways: according to the thinking (process) skill demanded by the question and according to the curricular content area being tested. The examination blueprint illustrates the distribution of questions in January 1990 according to these classifications.

Question Type by Course Content	Question Type by Thinking Skills					Examination Emphasis (%)
	Recall and Comp.	Inquiry Skills A	Inquiry Skills B	Inquiry Skills C	Valuing Skills	
Value Concepts competing values, value positions •Topic A •Topic B	7, 20, 40, 53				4, 31, 44, 56	8
Political and Economic Systems facts, concepts, generalizations	1, 2, 3, 5, 8, 10, 11, 14, 15, 21, 22, 28, 29, 33, 34, 35	9, 16, 24	6, 12, 13, 19, 23, 26, 27, 30, 32	17, 18, 25		31
Co-operation and Conflict Among States facts, concepts, generalizations	38, 39, 41, 42, 43, 46, 47, 48, 50, 54, 55, 59, 60, 61, 62, 63	49, 57, 68	36, 37, 51, 52, 58, 64, 65, 67, 69	45, 66, 70		31
Examination Emphasis (%)	36	6	18	6	4	70

Note: Skills and content tested in Part A: Multiple Choice are further tested in Part B: Written Response.

The following table shows the multiple-choice results and the keyed answers. There is a parallel table in the school and jurisdiction reports so that teachers can determine areas of strength and weakness in the achievement of their students relative to the province as a whole. The table in the school and jurisdiction reports shows the percentage of students selecting each alternative. Comparison of school results with provincial results may show areas of strength and weakness in instructional programs.

QUES.	KEY	DIFF.*	QUES.	KEY	DIFF.	QUES.	KEY	DIFF.	QUES.	KEY	DIFF.	QUES.	KEY	DIFF.
1	C	81.4	15	D	76.4	29	B	57.9	43	A	40.7	57	C	46.2
2	D	72.6	16	A	52.3	30	A	62.7	44	B	70.5	58	C	67.2
3	B	87.9	17	C	59.9	31	B	70.5	45	A	52.4	59	B	63.8
4	C	78.9	18	A	60.1	32	D	68.4	46	A	88.6	60	C	75.3
5	A	47.7	19	A	49.7	33	B	57.7	47	B	59.4	61	A	75.5
6	C	77.0	20	D	82.3	34	C	57.5	48	C	73.2	62	D	67.7
7	D	76.9	21	C	60.2	35	D	46.4	49	D	69.6	63	A	68.4
8	D	58.5	22	B	75.2	36	B	50.7	50	A	66.8	64	D	74.3
9	C	65.6	23	D	41.3	37	D	59.7	51	C	46.4	65	A	79 8
10	D	71.7	24	B	59.3	38	C	49.2	52	B	75.1	66	D	67.7
11	B	64.8	25	C	62.8	39	C	87.2	53	B	57.1	67	D	64.8
12	C	56.8	26	D	54.9	40	C	59.7	54	C	63.0	68	B	71.6
13	A	57.2	27	C	65.5	41	B	75.4	55	A	73.6	69	B	68.1
14	A	62.9	28	B	51.0	42	C	83.8	56	B	74.0	70	A	76.8

*Difficulty -- percentage of students answering the question correctly

EXAMINERS' COMMENTS

The multiple-choice section of the examination requires students to move beyond the simple recall of information to the application of knowledge and thinking skills. Students must demonstrate that they understand social studies concepts; comprehend historical, political, and economic relationships; and can interpret and evaluate social studies information and ideas. On the January 1990 examination, most students were able to demonstrate a level of achievement of these expectations that is acceptable and consistent with previous administrations of the examination. Just over 80% of the students achieved the acceptable standard (35 marks or better out of 70), while 23.5% achieved the standard of excellence (56 marks or better out of 70). The average score on the multiple-choice section of the examination was 45.8 out of 70 (65.4%). What is encouraging is the relatively high proportion of students achieving excellence on the multiple-choice part of the examination.

The following questions have been selected for discussion to illustrate some of the decisions (good and bad) that students made in responding and to show some of the skills and background knowledge necessary for success. Achievement on these questions reveals how students achieving at or above the standard of excellence on the whole examination apply thinking skills rather than giving only cursory or superficial consideration to the task set by the question.

Questions

35. In Canada, the idea of cabinet and caucus solidarity supports the belief that elected representatives should act as

    A. delegates and vote the way they are directed to by their constituents

    B. spokespersons for their constituents but decide each issue on its own merits

    C. agents for constituent concerns and place these interests above all others

    * D. party members and remain united behind a party's position and its leadership on all issues

46. The Hague Conference in 1907 and the SALT I negotiations in 1969 are similar in that both dealt with

    * A. arms limitation
    B. regional defence
    C. economic co-operation
    D. territorial settlements

Comments

Question 35 expected that students, using recall of information as a first step, could infer an important relationship between cabinet and caucus solidarity and the responsibilities of elected representatives. The question proved difficult: only 46% of the students chose the correct response. However, 81.7% of those achieving the standard of excellence on the whole examination answered correctly. This suggests that students, except those achieving the standard of excellence, had difficulty recalling the meaning of cabinet or caucus solidarity, confused the concepts, or did not understand the complex relationship between these concepts and their application to elected representatives.

The results suggest that students uncertain of the complexity of a politician's responsibilities may have guessed among incorrect alternatives (23% chose alternative A, 17% chose alternative B, 13% chose alternative C). Those students appeared to be unaware of, or did not understand, the nature of the dilemma for many politicians in a democracy of party interests versus constituents' wishes on public issues. However, the 46% of the students who answered correctly indicated that they can discern complex relationships.

On the other hand, question 46 expected students to understand a less complex relationship. Students were required to recall the important purposes of two historical developments and the similarity between these purposes. Most students (88%) were able to select the keyed response. This suggests that students achieving the acceptable standard are able to recall without difficulty certain historical events and their significance. It is possible that students achieving at the acceptable standard recognized the acronym SALT and connected arms limitation from the acronym to the correct answer. Students achieving the standard of excellence on the whole examination (80% or better) found this question very easy -- 96% answered correctly.

EXAMINERS' COMMENTS (continued)

Use the following cartoon to answer questions 51 and 52.

LITTLE CZECH-RIDING-HOOD

"What sharp teeth you have, Grandmamma!"
"All the better for peacefully revising treaties, my dear."

— from *The Second World War*

51. The cartoon was likely made in response to the actions of

A. American and British diplomats at Versailles in 1919
B. German and French diplomats at Locarno in 1925
* C. British and French diplomats at Munich in 1938
D. German and Soviet diplomats at Moscow in 1939

52. It may be inferred that the cartoonist held strong views regarding the territorial ambitions of

A. communist leaders
B. fascist dictators
*C. Western democracies
D. Central European states

Questions 51 and 52 expected students to interpret, analyse, and synthesize the information contained in an historical cartoon to arrive at a correct response. Question 51 required students to associate the message portrayed in the cartoon with the key historical event that prompted its creation. The question was difficult: only 46% of all students answered correctly. However, 90% of those achieving at or beyond the standard of excellence answered correctly.

Question 52, however, which required students to infer from the cartoonist's views the territorial ambitions of fascist dictators, was answered correctly by 75% of all students, and by 96% of those at or above the standard of excellence.

This difference in results suggests that those students achieving at or above the standard of excellence carefully reviewed and analysed all parts of the cartoon and its caption to note and to synthesize references to Czechoslovakia, concessions, revising treaties, and the Nazi swastika as specific background indicators pointing to the Munich Conference of 1938.

Results for question 52 suggest that many students achieving the acceptable standard recognized the fascist insignia, prominent in the cartoon, but did not recall or know about Munich, or chose to give to the cartoon only superficial attention. The question required that students attend to more than one detail in the cartoon. Results for question 51 indicate that many students did not do this.

PART B: WRITTEN RESPONSE

The results for the written-response section of the Social Studies 30 Diploma Examination follow. The results are tabulated according to the percentage of students achieving at each point (1 to 5) in each of the scoring categories. Each scoring category assesses somewhat different skills; consequently, individual student's scores are likely to vary from one category to another. Those students who achieve at or above the standard of excellence (80%) on the written-response part of the examination will have scores of (4) PROFICIENT or (5) EXCEPTIONAL on all scoring categories. Students just meeting the acceptable standard (50%) on the written-response part of the examination will have scores of (3) SATISFACTORY on some scoring categories but will be producing only (2) LIMITED work on other categories. Students who produce (3) SATISFACTORY work on ALL scoring categories have exceeded the acceptable standard by a small amount (10%).

Expectations for achievement in each scoring category are most clearly understandable in the context of the assignment and the scoring descriptors. Complete scoring guides are available in the *Grade 12 Diploma Examinations Program Bulletin: Social Studies 30: 1989-90 School Year (September 1989)*. All schools should have copies of this bulletin.

EXAMINATION BLUEPRINT and RESULTS
PART B: WRITTEN RESPONSE

The written-response section of the examination contributes 30% of the examination mark. Students are required to write one complete and unified essay in which they demonstrate their understanding of steps of the inquiry process, course content, and essay writing skills by defending a position on a given issue.

Part B: Written Response has a total value of 30 marks: 10 marks each for Defence of Position and Presentation of Examples or Case Studies, and five marks each for Discussion of Values and Quality of Language and Expression.

SCORING CATEGORY	PROPORTION OF TOTAL MARK (%)	PERCENTAGE DISTRIBUTION OF SCORES					
		(5) EXCEPTIONAL	(4) PROFICIENT	(3) SATISFACTORY	(2) LIMITED	(1) POOR	(0) INS
1. Defence of Position	10	2.0	15.4	43.8	33.6	5.0	0.2
2. Discussion of Values	5	1.6	11.7	35.0	36.3	14.8	0.6
3. Presentation of Examples or Case Studies	10	1.9	13.5	39.6	35.4	8.9	0.6
4. Quality of Language and Expression	5	2.2	17.8	60.0	18.7	1.2	0.2

Note: The shaded portion represents the percentage of students who achieved or exceeded a SATISFACTORY level of performance.

EXAMINERS' COMMENTS

It is expected that students who produce SATISFACTORY social studies essays have identified and defended a feasible position on the issue in question, have provided relevant and accurate case-study information in defence of their position, have clearly and accurately discussed the value positions related to the issue, and have presented their ideas in clear, correct language. Students who achieve at or above the standard of excellence must demonstrate thoughtfulness and insight with respect to the issue and related values, and discuss and develop their position with well-considered, pertinent information and convincing arguments.

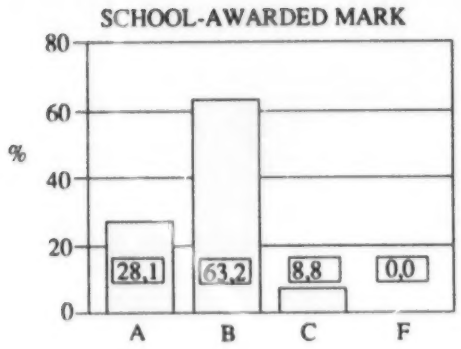
Student achievement on the written-response part of the January 1990 Social Studies 30 Diploma Examination was generally satisfactory. 68.3% of the students achieved the acceptable standard of 15 marks (50%) or better out of a possible 30 marks, while 8.4% achieved the standard of excellence of 24 marks (80%) or better. A closer statistical review of the percentage distribution of scores on the written component of the examination, however, reveals that while 80% of the students demonstrated a satisfactory or better command of language, many had difficulty dealing with the complexity of the task. For example, many students (51.1%) exhibited an uncertain or inaccurate understanding of the value dimension of the assignment. Nonetheless, each year students appear to be writing more substantive papers when defending their positions on an issue.

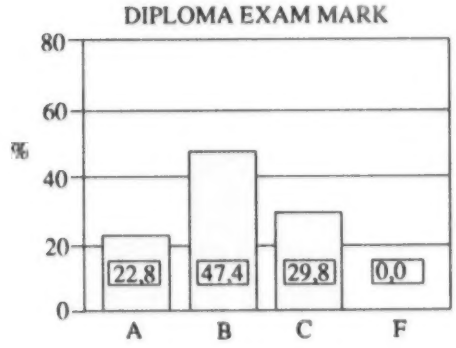
The writing task in Social Studies 30, similar to the major assignment in English 30, requires students to take a position on an issue and to develop their thesis through logical argument supported by relevant and appropriate data. To do well on the assignment, students must apply and clearly relate pertinent historical or contemporary knowledge as evidence to support their positions rather than incoherently marshalling too much or unnecessary and possibly marginally relevant evidence behind an unfocused line of argument. Unfortunately, a significant number of students substituted memorized information for reasoned thought or tended to make simple assertions or claims rather than develop supported ideas in their essays. A number of students who chose the Topic A assignment did not directly address the issue required of them. The issue, dealing with multiparty systems, was political in focus. Some students presented discussions that were almost entirely economic in content and therefore largely unrelated to the issue. The consequence for such students was a low score. It is crucial that students address the issue presented in the assignment and apply their skills of argumentation and persuasion to that issue. They must use supporting information that is appropriate to their discussion of the issue.

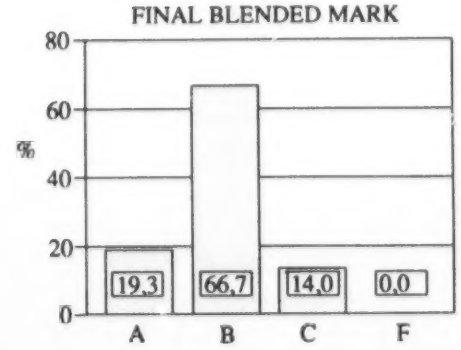
The curriculum for Social Studies 30 specifies that students are expected to demonstrate an awareness of significant contemporary developments. Such awareness is an integral part of the social studies program. Teacher markers concurred that students are expected to approach their discussion of issues by indicating their awareness and understanding of current affairs as applicable and appropriate. On both topics of the written assignment, some students, when using references to the Soviet Union and Eastern Europe in defending their positions, argued and wrote as if they were unaware of recent and momentous changes occurring in these regions of the world. Yet, many others effectively used their awareness of the current changes in the world order to augment their discussions.

For further information, contact Elana Scraba or Barry Jonas at the Student Evaluation Branch, 427-2948.

Français 30 Diploma Examination Results
January 1990







*January 1990 was the first administration of the Français 30 Diploma Examination.

The summary information in this report is intended to provide teachers, school administrators, students, and interested others with an overview of results from the January 1990 administration of the Français 30 Diploma Examination.* The information will be most useful when teachers and administrators use it in conjunction with the detailed school and jurisdiction reports that have been mailed to school jurisdiction offices. An annual provincial report containing a detailed analysis of the combined January and June results will be distributed in the fall of 1990.

DESCRIPTION OF THE EXAM

The Français 30 Diploma Examination consists of two parts: a written-response section worth 50% of the total examination mark and a multiple-choice section worth 50% of the total examination mark.

ACHIEVEMENT OF STANDARDS

The information reported is based on the final blended marks achieved by 57 students who wrote the January 1990 Français 30 Diploma Examination.

- 100.0% of these students achieved the acceptable standard (a final blended mark of 50% or higher).
- 19.3% of these students achieved the standard of excellence (a final blended mark of 80% or higher).

PROVINCIAL AVERAGES

- The average school-awarded mark was 74.2%.
- The average diploma exam mark was 70.6%.
- The average final blended mark, representing an equal weighting on the diploma and school marks, was 72.6%.

PART A: WRITTEN RESPONSE

The written-response section of the Français 30 Diploma Examination requires students to write two assignments related to the same piece of literature on the examination. The first assignment requires students to write a personal response to the literature. The other requires them to discuss literature read in class that is related to the given theme. A description of each assignment is given in the blueprint below.

The results for Part A: Written Response are most clearly understood in the context of the assignments and the scoring descriptors and are best interpreted by considering the percentage of students achieving at (3) SATISFACTORY or better. Satisfactory work that meets the standards expected is described in the scoring guide. Complete scoring guides are available in the *Grade 12 Diploma Examinations Program Bulletin: Français 30 Année Scolaire 1989-90 (Septembre 1989)*. Readers should be cautious about drawing conculsions based on these results since the number of students writing was only 57. Results should be helpful to teachers and administrators in considering areas of strength and weakness in their own programs.

PART A: WRITTEN-RESPONSE BLUEPRINT and PERCENTAGE DISTRIBUTION OF RESULTS

DESCRIPTION OF THE WRITING ASSIGNMENT	SCORING CATEGORY	PROPORTION OF TOTAL MARK	PERCENTAGE DISTRIBUTION OF SCORES					
			(5) SUPÉRIEUR	(4) COMPÉTENT	(3) SATISFAISANT	(2) LIMITÉ	(1) PAUVRE	(0) INS
Premier Sujet Le premier sujet présente aux élèves une situation ou un contexte (qui pourrait se rapporter à un texte) à partir duquel on leurs demandera, en faisant appel à leur expériences personelles, ou à tout autre renseignement, d'exprimer une oopinion, d'exposer une réaction ou de présenter des renseignements pertinents. Les élèves devraient adapter le langage et les détails pour communiquer de façon efficace leur message à leur public cible selon le but choisi.	1. Choisir et formuler	12,5	21,1	43,9	35,1	0,0	0,0	0,0
	2. Style et connaissance	7,5	15,8	38,6	43,9	1,8	0,0	0,0
Deuxième Sujet Le deuxième sujet fixe une tâche précise mais laisse aux élèves le les Idées choix de la structure et du style, ainsi que le choix des détails pertinents (exemples, illustrations) qui doivent être tirés des oeuvres étudiées dans leurs cours de français. Le sujet à traaiter se rapporter à un texte présenté à l'examen. Les élèves devront établir des liens entre le textes étudiés et s'exprimer clairement par écrit en tenant compte de leur public cible.	1. Traitement du sujet	5,0	22,8	33,3	43,9	0,0	0,0	0,0
	2. Choisir et formuler	7,5	10,5	47,4	42,1	0,0	0,0	0,0
	3. Organisation	7,5	24,6	42,1	29,8	3,5	0,0	0,0
	4. Style	5,0	15,8	43,9	35,1	5,3	0,0	0,0
	5. Connaissance de la langue	5,0	19,3	40,4	35,1	5,3	0,0	0,0

EXAMINERS' COMMENTS

Students seemed to understand the two assignments presented in the examination, and most students developed SATISFACTORY or better compositions. The content of the essays showed that students clearly understood the fable "La Grenouille qui se veut faire aussi grosse que le boeuf", on which the assignments were based.

For the Premier Sujet, students were able to express their reaction to the moral of La Fontaine's fable: that people set unrealistic goals for themselves. Moreover, the students were able to defend their positions with concrete examples from personal experience or from observation.

For the Deuxième Sujet, which was related to literature students studied in their French courses, students had no difficulty selecting literature in which one of the characters realized his ambition or fell victim to it. The results show that 22,8% of the students received a score of (5) SUPÉRIEUR, 33.3% received a score of (4) COMPÉTENT and 43,9% received a score of (3) SATISFAISANT. These results are best understood in the context of the assignments and the descriptors in the scoring guides.

Students used language clearly and correctly, with only 5.3% of them rating below (3) SATISFAISANT in the scoring category for the use of language. Good organization and style were also evident, as shown the result summaries of this report.

PART B: READING (MULTIPLE CHOICE)

Part B: Reading (Multiple Choice) of the examination consists of a reading booklet in which there are seven passages: two nonfiction, three fiction, one poem, and one piece of drama. A separate questions booklet contains 70 questions based on these readings. The questions are classified according to thinking skills and curriculum content.

RESULTS

Results are in average raw scores.

Total Part B: 45,7 out of 70

Subtest Results:*

- Course content
  - Idées principales/opinions: 27,9 out of 40
  - Rapport entre l'auteur et le lecteur: 8,6 out of 15
  - Valeurs exprimées: 9,1 out of 15

*Readers should use caution when considering the results, since the number of students writing -- 57 -- was very small and this is the first yesr the course was implemented.

EXAMINATION BLUEPRINT

Part B: Reading (Multiple Chioce) has a value of 70 marks, one mark for each multiple-choice question. Each question is classified in two ways: according to the thinking (process) skill demanded by the question and according to the curriculum content area being tested. The examination blueprint illustrates the distribution of questions in January 1990 according to these classifications.

Question Type by Course Content	Questions Types by Thinking Skills			Examination Emphasis (%)
	Identifier et sélectionner	Inférer, Appliquer, et Interpréter	Évaluer et Juger	
Idées principales/ opinions	21, 22, 57, 63, 64, 66	3, 4, 5, 11, 12, 13, 14, 16, 20, 27, 30, 32, 34, 35, 39, 40, 41, 42, 45, 48, 50, 51, 56, 58, 59, 61, 62, 68	7, 15, 17, 29, 46, 54	28,57
Rapport entre l'auteur et le lecteur	25, 65	2, 8, 9, 28, 31, 33, 36, 37, 38, 43, 44, 47	19	10,71
Valeurs exprimées	23	1, 6, 18, 26, 52, 53, 55, 67, 69, 70	10, 24, 49, 60	10,71
Examination Emphasis (%)	6,45	35,7	7,85	50

RESULTS (continued)

The following table shows question by question results and the keyed answer. There is a parallel table in the school and jurisdiction reports so that teachers can determine areas of strength and weakness in the achievement of their students and, consequently, areas of strength and weakness in their programs.

QUES.	KEY	DIFF.*	QUES.	KEY	DIFF.	QUES.	KEY	DIFF.	QUES.	KEY	DIFF.	QUES.	KEY	DIFF.
1	A	39,0	15	C	79,7	29	A	76,3	43	C	59,3	57	D	72,9
2	B	72,9	16	D	91,5	30	B	37,3	44	C	72,9	58	D	57,6
3	C	94,9	17	A	22,0	31	A	47,5	45	A	52,5	59	B	69,5
4	B	79,7	18	B	59,3	32	A	59,3	46	D	76,3	60	D	83,1
5	D	89,8	19	A	39,0	33	D	16,9	47	D	54,2	61	B	76,3
6	A	55,9	20	B	69,5	34	D	62,7	48	D	67,8	62	D	93,2
7	B	62,7	21	A	94,9	35	C	54,2	49	C	39,0	63	B	57,6
8	D	49,2	22	A	93,2	36	B	45,8	50	B	67,8	64	C	84,7
9	C	72,9	23	B	79,7	37	D	54,2	51	D	84,7	65	B	86,4
10	B	81,4	24	C	42,4	38	C	64,4	52	B	59,3	66	C	57,6
11	A	79,7	25	D	89,8	39	C	81,4	53	C	40,7	67	C	94,9
12	C	78,0	26	A	76,3	40	A	66,1	54	A	74,6	68	D	52,5
13	D	40,7	27	B	86,4	41	B	67,8	55	D	49,2	69	C	61,0
14	A	83,1	28	C	40,7	42	A	67,8	56	C	35,6	70	C	61,0

* Difficulty -- percentage of students answering the question correctly

EXAMINERS' COMMENTS

The following questions from the first reading selection on Part B: Reading are discussed here to show what students were expected to comprehend and how they handled the questions. References to the standard of excellence and the acceptable standard are interms of percentages of students achieving excellence (80%) or acceptable (50%) on the whole examniation.

Questions

1. Quand la servante Angélique, voulant améliorer la vie de son maître, lui donne un chien, elle montre

*A. sa sagesse
B. sa diligence
C. son espièglerie
D. sa reconnaissance

Comments

Question 1 required students to identify human values as reflected by what characters say or do. This question was considered difficult, particularly for students achieving near the acceptable standard. 39% of all students answered correctly; however, 46% of the students achieving the standard of excellence chose the correct answer. None of those who met the standard of excellence chose alternative C, which suggests that these students recognized that C was the only alternative with a negative connotation and, therefore, not a suitable completion for the thought in the stem. Students who met acceptable standards might not have seen this distinction. These results reflect expectations for students just meeting the acceptable standard.

EXAMINERS' COMMENTS (continued)

Questions

4. M. Bergeret pense que "le compagnon le plus sûr que l'on puisse avoir" (lignes 32-33) est un chien parce que cet animal a

   A. un regard compatissant
   *B. une innocence profonde
   C. du caractère
   D. de l'humour

Comments

Question 4 required students to infer the reason why Mr. Bergeret concluded that his dog was the best of possible companions. Students generally found this question easy. No students chose alternatives C and D. This suggests two things: that both high scoring students and low scoring students likely reread the context in which the quotation in the stem was found, and that both groups then preferred one of the modified alternatives. There was a difference between the students meeting the standard of excellence and those achieving at or below the acceptable standard, 92% of the former correctly selected B, indicating that they understood the difference between a quality such as innocence and an appearance of compassion, and only 40% of the lower scoring students answered correctly, indicating that for many this difference was not recognizable.

8. L'auteur soutient notre intérêt grâce à ton

   A. sadique
   B. ironique
   C. dramatique
   *D. philosophique

Question 8 required students to recognize the tone the author used to communicate to the reader the growth of affection and appreciation between man and dog in the passage. Half of the students (49.2%) were able to determine the philosophical tone. Of that half, 77% were students who achieved the standard of excellence on the total examination and 29% were students who met or exceeded acceptable standards.

This suggests that students who met the standard of excellence found little difficulty inferring, applying, and interpreting tone, whereas those just meeting the acceptable standard had difficulty recognizing how the author communicated his feeling to his readers. Students who achieved in the acceptable range were drawn to all four alternatives indicating that this question was (as was expected) somewhat more difficult for them than for others.

All students achieving above the acceptable standard are expected to recognize an author's tone; however , the degree of inference required and the subtlety of the text will affect whether or not they can achieve this expectation.

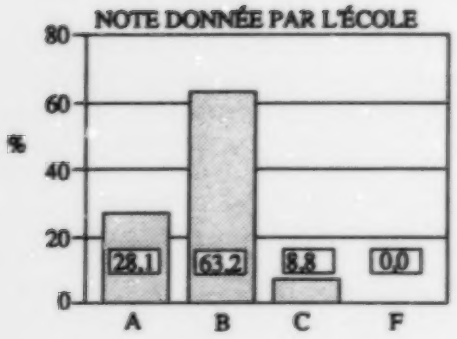
10. La phrase qui, selon l'auteur, montre LE MIEUX la différence entre l'home et l'animal est:

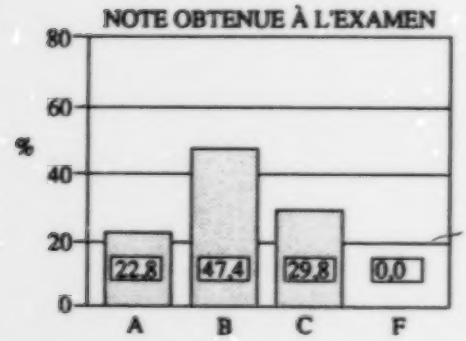
    A. "Ce petit être vivait dans le moment présent, sans souci des temps révolus" (lignes 20-21)
    *B. "Tu n'as pas ri, comme aurait fait à ta place tout jeune individu de mon espèce" (lignes 29-30)
    C. "Mais par cela même, par ta gravité naïve, tu fais le compagnon le plus sûr l'on puisse avoir" (lignes 32-33)
    D. "Quelle charité obscure a jailli pour moi de ta pauvre petite âme?" (lignes 39-40)

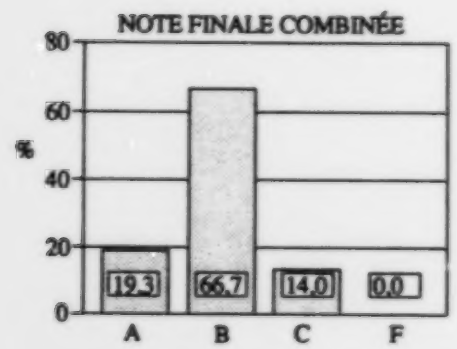
Question 10 required studenst to judge which one of four quotations from the passage BEST reflects that which, according to the author, is the basic difference between man and animal. In such an evaluation question, all alternatives contain a measure of correctness. This means that all alternatives must be read with equal attention, and the student must judge which one BEST fits the text. Results showed that students (85%) achieving near the standard of excellence on the examination as a whole chose the right answer and that 73.3% of the students achieving near the acceptable standard succeeded in making the right evaluation. The resulting overall difficulty level was 81.4%, which suggests that this was a reasonably easy question for all students but considerably easier for students achieving near or above the standard of excellence. The results confirm that, for this particular story, most students met the expectation of the program in that they understood the author's intent.

For further information, contact Elana Scraba or Aline Mercier at the Student Evaluation Branch, 427-2948.

Résultats de l'examen de Français 30 en vue du diplôme Janvier 1990







Les renseignements sommaires donnés dans le présent rapport visent à fournir aux enseignants, aux administrateurs scolaires, aux élèves et à toute autre personne intéressée une vue d'ensemble des résultats de l'examen de Français 30 en vue du diplôme administré en janvier 1990.* Ces renseignements seront le plus utiles quand enseignants et administrateurs les utiliseront à côté des rapports détaillés par école et par juridiction qui ont été envoyés aux bureaux des juridictions scolaires. Un rapport provincial annuel contenant une analyse détaillée des résultats combinés de janvier et de juin sera distribué à l'automne 1990.

DESCRIPTION DE L'EXAMEN

L'examen de Francais 30 en vue du diplôme comporte deux parties: la production écrite qui vaut 50% de la note totale d'examen et la compréhension écrite (choix multiples) qui vaut également 50% de la note totale d'examen.

NIVEAU ATTEINT

Les renseignements donnés ici sont basés sur les notes finales combinées obtenues par les 57 élèves qui ont passé l'examen de Français 30 en vue du diplôme en janvier 1990.

- 100,0% de ces élèves ont atteint le niveau acceptable (une note finale combinée de 50% ou plus).
- 19,3% des élèves ont atteint le niveau excellent (une note finale combinée de 80% ou plus).

MOYENNE PROVINCIALE

- La note moyenne donnée par l'école était 74,2%.
- La note moyenne obtenue à l'examen était 70,6%.
- La note moyenne finale combinée, représentant un pourcentage égal de la note du diplôme et de celle de l'école, était 72,6%.

*Janvier 1990 était la première fois que cet examen était administré.

PARTIE A: PRODUCTION ÉCRITE

Dans la partie de la production écrite de l'examen du Français 30 en vue du diplôme, il est demandé aux élèves d'écrire sur deux sujets séparés, portant tous les deux sur un même passage littéraire donné à l'examen. Dans le premier sujet, il est demandé aux élèves de rédiger une réponse personnelle au passage littéraire. Dans l'autre sujet, il leur est demandé de discuter des oeuvres littéraires lues en classe qui se rapportent au thème donné. Une description de chaque exercice est donnée dans le plan d'ensemble ci-dessous.

Les résultats de la Partie A: Production écrite se comprennent le mieux dans le contexte des exercices et des descripteurs utilisés pour les noter, et s'interprètent le mieux en considérant le pourcentage d'élèves ayant atteint le niveau (3) SATISFAISANT ou mieux que satisfaisant. Un travail satisfaisant qui répond aux normes proposées est décrit dans le guide de notation. On trouvera les guides de notation complets dans le *Programme des examens en vue du diplôme: Bulletin de Français 30: Année scolaire 1989-90 (Septembre 1989).* Le lecteur devrait se garder de tirer des conclusions basées sur ces résultats puisqu'il n'y a que 57 élèves qui ont écrit cet examen. Les résultats devraient toutefois être utiles pour les enseignants et les administrateurs pour considérer les domaines de force et de faiblesse dans leurs propres programmes.

PARTIE A: PLAN D'ENSEMBLE DE LA PRODUCTION ÉCRITE et RÉPARTITION DES RÉSULTATS EN POURCENTAGE

DESCRIPTION DES EXERCICES	CATÉGORIE DE NOTATION	POURCENTAGE DE LA NOTE TOTALE (%)	RÉPARTITION DES POINTS EN POURCENTAGE					
			(5) SUPÉRIEUR	(4) COMPÉTENT	(3) SATISFAISANT	(2) LIMITÉ	(1) PAUVRE	(0) INS
Premier sujet Le premier sujet présente aux élèves une situation ou un contexte (qui pourrait se rapporter à un texte) à partir duquel on leur demandera, en faisant appel à leur expériences personelles, ou à tout autre renseignement, d'exprimer une opinion, d'exposer une réaction ou de présenter des renseignements pertinents. Les élèves devraient adapter le langage et les détails pour communiquer de façon efficace leur message à leur public cible selon le but choisi.	1. Choisir et formuler les idées	12,5	21,1	43,9	35,1	0,0	0,0	0,0
	2. Style et connaissance de la langue	7,5	15,8	38,6	43,9	1,8	0,0	0,0
Deuxième sujet Le deuxième sujet fixe une tâche précise mais laisse aux élèves le choix de la structure et du style, ainsi que le choix des détails pertinents (exemples, illustrations) qui doivent être tirés des oeuvres étudiées dans leurs cours de français. Le sujet à traiter se rapportera à un texte présenté à l'examen. Les élèves devront établir des liens entre les textes étudiés et s'exprimer clairement par écrit en tenant compte de leur public cible.	1. Traitement du sujet	5,0	22,8	33,3	43,9	0,0	0,0	0,0
	2. Choisir et formuler les idées	7,5	10,5	47,4	42,1	0,0	0,0	0,0
	3. Organisation	7,5	24,6	42,1	29,8	3,5	0,0	0,0
	4. Style	5,0	15,8	43,9	35,1	5,3	0,0	0,0
	5. Connaissance de la langue	5,0	19,3	40,4	35,1	5,3	0,0	0,0

COMMENTAIRES DES EXAMINATEURS

Les élèves ont semblé comprendre les deux sujets présentés à l'examen et la plupart des élèves ont rédigé des compositions satisfaisantes ou mieux que satisfaisantes. Le contenu des essais a montré qui les élèves comprenaient bien la fable "La Grenouille qui se veut faire aussi grosse que le boeuf", sur laquelle étaient basés les sujets.

Pour le premier sujet, les élèves étaient capables d'exprimer leur réaction à la morale de la fable de La Fontaine: à savoir que les gens se fixent des buts irréalistes. De plus, ils ont été capables de défendre leur position avec des exemples concrets tirés de leur expérience personnelle ou de l'observation.

Pour le deuxième sujet, qui portait sur la littérature étudiée dans leurs cours de français, les élèves n'ont eu aucune difficulté à trouver une oeuvre littéraire dans laquelle un des personnages réalisait ses ambitions ou en était victime. Les résultats montrent que 22,8% des élèves ont obtenu une note de (5) SUPÉRIEUR, 33,3% ont obtenu une note de (4) COMPÉTENT et 43,9% ont obtenu une note de (3) SATISFAISANT. Ces résultats se comprennent le mieux dans le contexte des exercices et des descripteurs donnés dans les guides de notation.

Les élèves ont employé une langue claire et correcte, 5,3% seulement atteignant un niveau inférieur à (3) SATISFAISANT dans la catégorie de notation pour l'emploi de la langue. Un bon plan et un bon style étaient aussi évidents, comme le montrent les résultats récapitulés dans ce rapport.

PARTIE B: COMPRÉHENSION ÉCRITE (CHOIX MULTIPLES)

Le Partie B: Compréhension écrite (choix multiples) de l'examen se compose d'un livret de lecture dans lequel il y a sept passages: deux non romanesques, trois romanesques, un poème et un extrait de pièce de théâtre. Un livret de questions séparé contient 70 questions basées sur ces passages. Les questions sont classées d'après les habiletés cognitives et le contenu du programme.

RÉSULTATS

Les résultats sont donnés en première approximation de note moyenne.

Total de la Partie B: 45,7 sur 70

Résultats par subtest:*

- Contenu du cours
  - Idées principales/opinions: 27,9 sur 40
  - Rapport entre l'auteur et le lecteur: 8,6 sur 15
  - Valeurs exprimées: 9,1 sur 15

*Les lecteurs devraient considérer les résultats avec circonspection puisque le nombre des élèves ayant passé l'examen -- 57 -- était très petit et que c'est la première fois que le cours était enseigné.

PLAN D'ENSEMBLE DE L'EXAMEN

La Partie B: Compréhension écrite (choix multiples) a une valeur de 70 points, un point pour chaque question à choix multiples. Chaque question est classée de deux façons: d'après l'habileté (processuelle) cognitive exigée par la question et d'après le domaine du programme faisant l'objet de la question. Le plan d'ensemble de l'examen illustre la répartition des questions en janvier 1990 d'après ces classifications.

Type de question/ contenu du cours	Type de question/habiletés cognitives			Pourcentage de l'examen (%)
	Identifier et Sélectionner	Inférer, Appliquer, et Interpréter	Évaluer et Juger	
Idées principales/ opinions	21, 22, 57, 63, 64, 66	3, 4, 5, 11, 12, 13, 14, 16, 20, 27, 30, 32, 34, 35, 39, 40, 41, 42, 45, 48, 50, 51, 56, 58, 59, 61, 62, 68	7, 15, 17, 29, 46, 54	28,6
Rapport entre l'auteur et le lecteur	25, 65	2, 8, 9, 28, 31, 33, 36, 37, 38, 43, 44, 47	19	10,7
Valeurs exprimées	23	1, 6, 18, 26, 52, 53, 55, 67, 69, 70	10, 24, 49, 60	10,7
Pourcentage de l'examen (%)	6,45	35,7	7,85	50

RÉSULTATS (suite)

Le tableau suivant donne, question par question, les résultats et la réponse. Il y a un tableau parallèle dans les rapports par école et par juridiction pour que les enseignants puissent déterminer les domaines de force et de faiblesse dans les résultats de leurs élèves et, en conséquence, les domaines de force et de faiblesse dans leurs programmes.

QUES.	RÉP.	DIFF.*	QUES.	RÉP.	DIFF.	QUES.	RÉP.	DIFF.	QUES.	RÉP.	DIFF.	QUES.	RÉP.	DIFF.
1	A	39,0	15	C	79,7	29	A	76,3	43	C	59,3	57	D	72,9
2	B	72,9	16	D	91,5	30	B	37,3	44	C	72,9	58	D	57,6
3	C	94,9	17	A	22,0	31	A	47,5	45	A	52,5	59	B	69,5
4	B	79,7	18	B	59,3	32	A	59,3	46	D	76,3	60	D	83,1
5	D	89,8	19	A	39,0	33	D	16,9	47	D	54,2	61	B	76,3
6	A	55,9	20	B	69,5	34	D	62,7	48	D	67,8	62	D	93,2
7	B	62,7	21	A	94,9	35	C	54,2	49	C	39,0	63	B	57,6
8	D	49,2	22	A	93,2	36	B	45,8	50	B	67,8	64	C	84,7
9	C	72,9	23	B	79,7	37	D	54,2	51	D	84,7	65	B	86,4
10	B	81,4	24	C	42,4	38	C	64,4	52	B	59,3	66	C	57,6
11	A	79,7	25	D	89,8	39	C	81,4	53	C	40,7	67	C	94,9
12	C	78,0	26	A	76,3	40	A	66,1	54	A	74,6	68	D	52,5
13	D	40,7	27	B	86,4	41	B	67,8	55	D	49,2	69	C	61,0
14	A	83,1	28	C	40,7	42	A	67,8	56	C	35,6	70	C	61,0

* Difficulté -- pourcentage d'élèves ayant bien répondu à la question

COMMENTAIRES DES EXAMINATEURS

Les questions suivantes portant sur le premier passage de la Partie B: Compréhension écrite (choix multiples) sont discutées ici pour montrer ce que les élèves étaient censés comprendre et comment ils ont traité les questions. Les références au niveau excellent ou acceptable sont exprimées en fonction des pourcentages d'élèves ayant atteint le niveau excellent (80% et plus) ou acceptable (50% et plus) pour tout l'examen.

Questions

1. Quand la servante Angélique, voulant améliorer la vie de son maître, lui donne un chien, elle montre

*A. sa sagesse
B. sa diligence
C. son espièglerie
D. sa reconnaissance

Commentaires

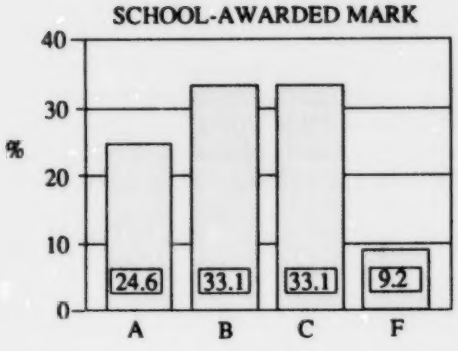
La question 1 demandait aux élèves d'identifier les valeurs humaines que reflète ce que disent ou font les personnages. Cette question était jugée difficile, en particulier pour les élèves approchant du niveau acceptable. 39% de tous les élèves y ont bien répondu; cependant, 46% des élèves ayant atteint le niveau excellent ont choisi la bonne réponse. Aucun de ceux ayant atteint le niveau excellent n'ont choisi la réponse C, ce qui suppose que ces élèves ont reconnu que c'était la seule réponse avec une connotation négative et que cela ne convenait donc pas pour compléter la pensée exprimée dans la prémisse. Les élèves ayant obtenu le niveau acceptable n'ont peut-être pas vu cette distinction. Ces résultats reflètent les attentes pour les élèves qui atteignent juste le niveau acceptable.

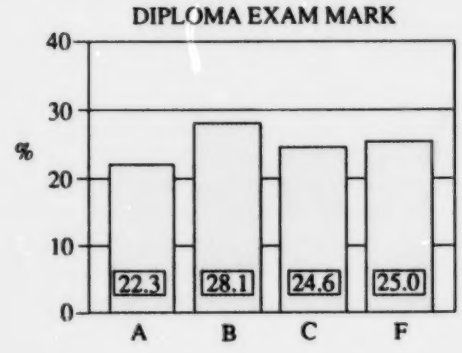
COMMENTAIRES DES EXAMINATEURS(suite)

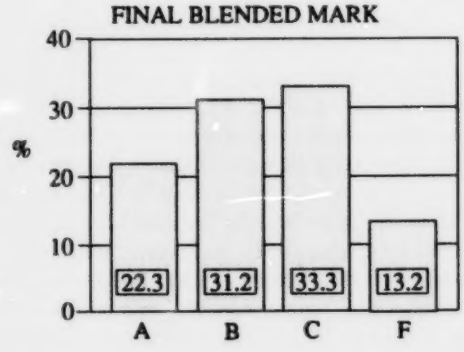
Questions	Commentaires
4. M. Bergeret pense que "le compagnon le plus sûr que l'on puisse avoir" (lignes 32-33) est un chien parce que cet animal a A. un regard compatissant *B. une innocence profonde C. du caractère D. de l'humour	La question 4 demandait que les élèves infèrent la raison pour laquelle M. Bergeret a conclu que son chien était le meilleur compagnon possible. Les élèves ont généralement trouvé cette question facile. Aucun élève n'a choisi les réponses C ou D. Ceci suggère deux choses -- que les élèves aux notes élevées et les élèves aux notes basses sont retournés au texte pour lire le contexte où se trouvait la citation de la prémisse et que les deux groupes ont alors préféré les réponses avec un déterminant. Il y avait une différence entre les élèves ayant atteint le niveau excellent et ceux ayant atteint le niveau acceptable ou un niveau inférieur, 92% des premiers ont bien choisi B, indiquant qu'ils comprenaient la différence entre une qualité comme l'innocence et une apparence de compassion, et seulement 40% de l'autre catégorie ont bien répondu, ce qui indique que, pour beaucoup, cette différence n'était pas reconnaissable.
8. L'auteur soutient notre intérêt grâce à un ton A. sadique B. ironique C. dramatique *D. philosophique	La question 8 demandait aux élèves de reconnaître le ton que l'auteur utilisait pour communiquer au lecteur l'affection et l'appréciation croissantes entre l'homme et son chien dans le passage. La moitié des élèves (49,2%) ont été capables de déterminer le ton philosophique. Sur cette moitié, 77% étaient des élèves ayant atteint le niveau excellent à l'examen total et 29% étaient des élèves ayant atteint le niveau acceptable. Ceci laisse entendre que les élèves ayant atteint le niveau excellent ont eu peu de difficulté à inférer, appliquer et interpréter le ton tandis que ceux ayant juste atteint le niveau acceptable ont eu de la difficulté à reconnaître comment l'auteur communiquait ses sentiments à ses lecteurs. Les élèves se plaçant dans la marge acceptable ont été attirés par les quatre réponses, ce qui indique que la question était (comme il fallait s'y attendre) plus difficile pour eux que pour les autres. On s'attend à ce que tous les élèves atteignant un niveau supérieur à acceptable reconnaissent le ton d'un auteur; cependant, le degré d'inférence nécessaire et la subtilité du texte influeront sur le fait qu'ils répondront ou non à cette attente.
10. La phrase qui, selon l'auteur, montre LE MIEUX la différence entre l'homme et l'animal est A. "Ce petit être vivait dans le moment présent, sans souci des temps révolus" (lignes 20-21) *B. "Tu n'as pas ri, comme aurait fait à ta place tout jeune individu de mon espèce" (lignes 29-30) C. "Mais par cela même, par ta gravité naïve, tu fais le compagnon le plus sûr que l'on puisse avoir" (lignes 32-33) D. "Quelle charité obscure a jailli pour moi de ta pauvre petite âme?" (lignes 39-40)	La question 10 demandait aux élèves de juger sur quatre citations du passage, laquelle reflétait LE MIEUX ce qui, d'après l'auteur, est la différence essentielle entre l'homme et l'animal. Dans une question d'évaluation de ce type, toutes les réponses combinent un degré d'exactitude. Ce qui veut dire que toutes les réponses doivent être lues avec une attention égale et que l'élève doit juger laquelle convient LE MIEUX au texte. Les résultats ont montré que les élèves (85%) ayant atteint le niveau excellent à l'examen ont choisi dans l'ensemble la bonne réponse et que 73,3% des élèves ayant atteint le niveau acceptable ont réussi à bien évaluer. Le niveau général de difficulté en résultant était de 81,4%, ce qui suggère que c'était une question assez facile pour tous les élèves, mais beaucoup plus facile pour les élèves ayant atteint ou dépassé le niveau excellent. Les résultats confirment que, pour cette histoire particulière, la plupart des élèves ont répondu à l'attente du programme en ce qu'ils ont compris l'intention de l'auteur.

Pour plus ample information, s'adresser à Elana Scraba ou à Aline Mercier au Student Evaluation Branch, 427-2948.

Mathematics 30 Diploma Examination Results
January 1990







The summary information in this report is intended to provide teachers, school administrators, students, and interested others with an overview of results from the January 1990 administration of the Mathematics 30 Diploma Examination. The information will be most useful when teachers and administrators use it in conjunction with the detailed school and jurisdiction reports that have been mailed to school jurisdiction offices. An annual provincial report containing a detailed analysis of the combined January and June results will be distributed in the fall of 1990.

DESCRIPTION OF THE EXAM

The Mathematics 30 Diploma Examination consists of three parts: a multiple-choice section of 40 questions worth 61.5% of the total, a numerical-response section of 12 questions worth 18.5% of the total, and a written-response section of three questions worth 20% of the total.

ACHIEVEMENT OF STANDARDS

The information reported is based on the final blended marks achieved by 8 932 students who wrote the January 1990 Mathematics 30 Diploma Examination.

- 86.8% of these students achieved the acceptable standard (a final blended mark of 50% or higher)
- 22.3% of these students achieved the standard of excellence (a final blended mark of 80% or higher).

PROVINCIAL AVERAGES

- The average school-awarded mark was 67.7%.
- The average diploma exam mark was 63.4%.
- The average final blended mark, representing an equal weighting of the diploma and school marks, was 66.0%.

SUBTEST RESULTS

When analysing any detailed examination results, please bear in mind that subtest averages cannot be directly compared.

Machine-scored questions: 64.9%

Written-response: 56.9%

- Course Content
  - Trigonometry: 65.8%
  - Quadratic Relations: 61.1%
  - Sequences, Series, Limits: 58.5%
  - Statistics: 70.2%
  - Logarithms: 69.4%
  - Polynomial Functions: 57.1%
- Cognitive Levels
  - Knowledge: 68.3%
  - Comprehension: 75.3%
  - Application: 61.1%
  - Higher Mental Activities: 40.7%

EXAMINATION BLUEPRINT

Each question on the examination is classified in two ways: according to the cognitive level demanded by the question and according to the curricular content area being tested. The examination blueprint illustrates the distribution of questions according to these classifications. Numbers in round brackets ( ) indicate numerical-response questions, numbers in square brackets [ ] indicate written-response questions, and those without brackets are multiple-choice questions.

Reporting Category	Questions by Cognitive Level				Examination Emphasis (%)
	Knowledge	Comprehension	Application	Higher Mental Activities	
Trigonometry	3	2, 4, 5, 6	1, 8, 9 (1) [2]	7 (2)	24.6
Quadratic Relations	12	17, 18, 19 (3) (4)	10, 11, 13, 14, 15, 16	20 (5)	21.5
Sequences, Series, Limits	25	21, 24, 26 (6)	22 (7) [3]	23, 27	20.0
Statistics	28	31 (8)	29 [1]	30	13.8
Logarithms	32	33, 35 (10)	(9)	34	9.2
Polynomial Functions	38	40 (12)	36, 39 (11)	37	10.8
Examination Emphasis (%)	9.2	30.8	46.2	13.8	100

RESULTS and EXAMINERS' COMMENTS

The examination has a balance of question types and difficulties designed so that a student capable of achieving the acceptable standard would obtain a mark of 50% or better on the examination. Students achieving the standard of excellence would obtain a mark of 80% or better on the examination.

MULTIPLE CHOICE and NUMERICAL RESPONSE

QUESTION	KEY	DIFFICULTY*	QUESTION	KEY	DIFFICULTY	QUESTION	KEY	DIFFICULTY
1	C	78.5	18	A	77.9	35	A	78.0
2	B	91.7	19	D	79.0	36	C	74.4
3	B	61.3	20	C	52.0	37	A	33.5
4	D	66.6	21	B	82.2	38	C	63.0
5	B	80.9	22	C	70.6	39	B	71.3
6	C	84.4	23	A	50.6	40	D	61.5
7	A	57.6	24	D	85.7	1	015.2	85.7
8	D	72.8	25	A	54.6	2	003.0	18.8
9	C	74.0	26	D	75.9	3	007.2	63.9
10	D	71.9	27	A	51.0	4	011.4	72.1
11	C	60.5	28	D	71.9	5	023.0	15.4
12	A	84.2	29	D	69.5	6	121.5	57.7
13	B	67.3	30	B	45.4	7	252.0	51.2
14	B	41.3	31	A	79.7	8	008.1	82.4
15	B	46.3	32	C	73.9	9	001.6	71.5
16	C	59.7	33	B	83.2	10	000.5	67.6
17	A	60.5	34	D	40.9	11	001.5	25.3
					12	350.0	70.0	

* Percentage of students answering the question correctly

MULTIPLE CHOICE and NUMERICAL RESPONSE (continued)

1. In ΔABC, $\angle B = 118^\circ$, $b = 32.6$ cm, and $a = 16.3$ cm. The measure of $\angle C$ correct to the nearest tenth of a degree is

   A. 63.8°

   B. 54.2°

   *C. 35.8°

   D. 26.2°

Question 1 required students to determine the measure of an angle using the Sine Law and was answered correctly by 78.5% of the students. Students who stopped part way through the solution would select $\angle A = 26.2^\circ$, alternative D. Alternative D attracted 25.7% of the students, while only 6.5% of those achieving the standard of excellence chose this response.

25. The $\lim_{n \to \infty} \left(\frac{2}{3}\right)^n$ is

   *A. 0

   B. 1

   C. ∞

   D. nonexistent

Question 25 was answered correctly by only 54.6% of the students. An understanding of limits such as the one in this question is necessary for the students to enable them to understand the development of the formula for the sum of an infinite geometric series, which follows in the course objectives. In general, evaluating limits continues to be a problem for many students.

Use the following information to answer question 37.

I. $x^3 + x^2 - 4x - 4$

II. $-x^3 - x^2 + 4x + 4$

II. $2x^3 + 2x^2 - 8x - 8$

IV. $3x^3 + 3x^2 - 12x - 12$

37. Which of the given polynomials will have the same zeros?

   *A. All of them

   B. None of them

   C. Only I and II

   D. Only I, III and IV

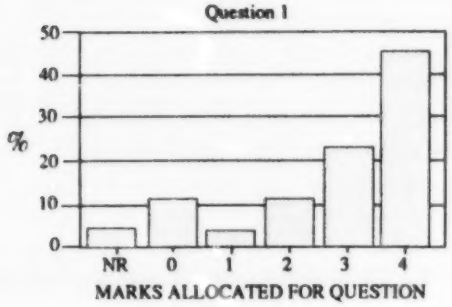
Question 37 was found to be difficult, with 33.5% of the students answering correctly. The majority of students do not seem to know that multiplying a polynomial by a constant will not change its zeros or the x-intercepts of the corresponding polynomial function. Most of these students, 27.5%, chose D, thinking they could change the polynomial by a constant provided this did not change the signs. Even those students achieving excellence answered this question poorly, with only 54.9% of them answering correctly.

11. If $x - c$ is a factor of $6x^3 + 3cx^2 - c^2x - 27$, then the value of c correct to the nearest tenth is _____.

The numerical-response questions discriminate very well between students achieving at the acceptable and excellent standards. Question 11 was answered correctly by 25.3% of the students. Of those students achieving the standard of excellence, 64.9% answered correctly. Of the remaining students who achieved the acceptable standard on the examination overall, 18.7% answered correctly and only 4.4% of those not achieving the acceptable standard were able to answer correctly.

WRITTEN RESPONSE

The three written-response questions were designed so that most students would have some success with question 1 and that questions 2 and 3 would be challenging to even the excellent students.

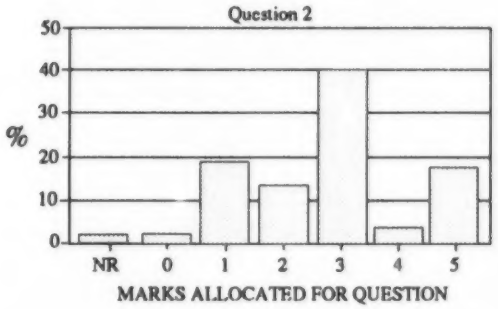


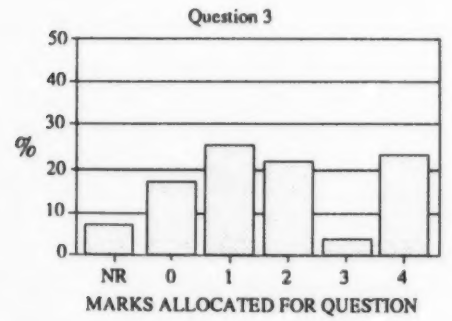
Question 1 was done well by most students. Some students did not appear to know that there is a difference between positive and negative z-scores. The markers were concerned that many students continue to equate z-scores with areas and to use equal signs incorrectly. For example:

$$z = 0.75 = 0.2734 = 0.2734 + 0.5 = 0.7734(5000) = 3867$$

On this 4-mark question, the average mark was 2.80 for 70.0% of the available mark.

Question 2 results indicate that most students were able to draw a diagram and then to find the minimum distance between the vehicles. To find the maximum distance between the car and the truck, many students incorrectly added the distances along the roads. Only 23% of the students were able to identify the second situation involving an angle of 131° and hence obtained more than 3 marks for their solution. On this 5-mark question, the average mark was 2.78 for 55.6% of the available mark.



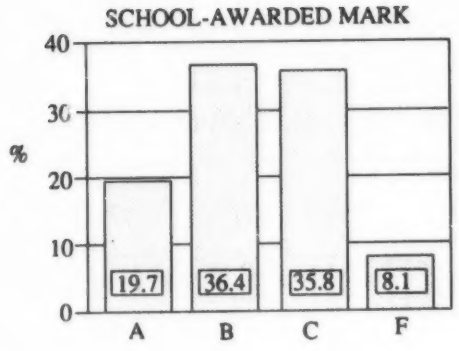


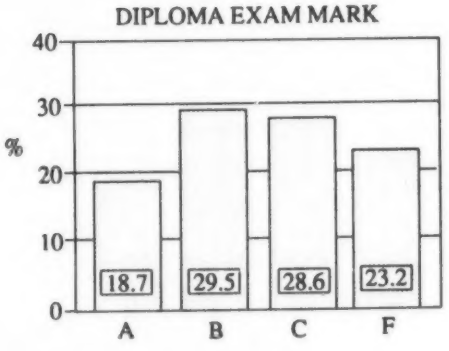
Question 3 was difficult for most students. Two marks could be obtained for determining that there were 60 deposits with an effective interest rate of 0.75% per period. Only 28.1% of the students were able to go beyond this point in the question. The most common error was failing to recognize the annuity and attempting to do the question as the accumulated amount of a lump sum using the formula $A=P(1+i)^n$. On this 4-mark question, the average mark was 1.78 for 44.5% of the available mark.

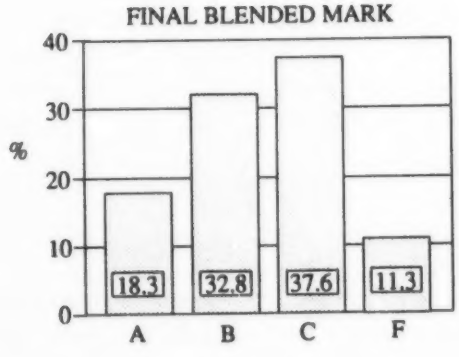
Some students continue to omit pertinent explanations, calculations, or formulas. Such solutions do not receive full credit. In question 1, for example, if a student showed only the two correct answers, a mark of 2 would be assigned. Similarly, for question 3, if a student showed only the correct accumulated amount, the mark assigned would be only 1 out of a possible 4 marks.

For further information, contact Phill Campbell or Florence Glanfield at the Student Evaluation Branch, 427-2948.

Biology 30 Diploma Examination Results
January 1990







The summary information in this report is intended to provide teachers, school administrators, students, and interested others with an overview of results from the January 1990 administration of the Biology 30 Diploma Examination. The information will be most useful when teachers and administrators use it in conjunction with the detailed school and jurisdiction reports that have been mailed to school jurisdiction offices. An annual provincial report containing a detailed analysis of the combined January and June results will be distributed in the fall of 1990.

DESCRIPTION OF THE EXAM

The Biology 30 Diploma Examination consists of two parts: a multiple-choice section of 70 questions worth 70% of the total, and a written-response section of seven questions worth 30% of the total.

ACHIEVEMENT OF STANDARDS

The information reported is based on the final blended marks achieved by 8 113 students who wrote the January 1990 Biology 30 Diploma Examination.

- 88.7% of these students achieved the acceptable standard (a final blended mark of 50% or higher).
- 18.3% of these students achieved the standard of excellence (a final blended mark of 80% or higher).

PROVINCIAL AVERAGES

- The average school-awarded mark was 66.7%.
- The average diploma exam mark was 63.1%.
- The average final blended mark, representing an equal weighting of the diploma and school marks, was 65.3%.

SUBTEST RESULTS

When analysing any detailed examination results, please bear in mind that subtest results cannot be directly compared.

Machine scored: 68.1%

Written response: 51.1%

- Course Content
  - Cellular Processes: 56.4%
  - Homeostatic Mechanisms: 55.4%
  - Nutrition and Digestion: 62.7%
  - Body Fluids: 58.2%
  - Breathing, Gas Exchange, and Transport: 74.6%
  - Energy Release: 77.8%
  - The Kidney: 54.7%
  - Regulation of the Internal Environment: 61.9%
  - Voluntary Movement and Body Support: 68.1%
  - Human Reproduction: 72.7%
- Process Skills: 59.3%
  - Process skills were evaluated in multiple-choice questions 10, 11, 15, 16, 17, 18, 24, 26, 27, 32, 33, 34, 37, 38, 39, 49, 56, 59, 60, and 64, and written-response questions 1 and 5.
- Cognitive Levels
  - Knowledge: 71.8%
  - Comprehension and Application: 59.0%
  - Higher Mental Activities: 63.0%

EXAMINATION BLUEPRINT

Each question on the examination is classified in two ways: according to the cognitive level demanded by the question and according to the curricular content area being tested. The examination blueprint illustrates the distribution of questions according to these classifications. The numbers in square brackets [ ] indicate written-response questions, and those without brackets indicate multiple-choice questions.

Reporting Category	Questions by Cognitive Level			Examination Emphasis (%)
	Knowledge	Comprehension and Application	Higher Mental Activities	
Cellular Processes	1, 2	[1]	3, 4	9
Homeostatic Mechanisms	5		[2]	4
Nutrition and Digestion	6, 7 [3]	8, 9, 10, 11, 12, 13, 14, 15	16, 17, 18	16
Body Fluids	19, 23	20, 21, 22, 24, 25, 26 [5]	27	15
Breathing, Gas Exchange, and Transport	28, 29, 30	31, 32, 33	34	7
Energy Release	35	36, 37	38, 39	5
The Kidney	40, 41, 42	43, 44, 45 [4]	46	10
Regulation of the Internal Environment	47, 48, 53, 54, 55	49, 50, 51, 52, 57, 58 [6]	56, 59, 60	20
Voluntary Movement and Body Support	61	62, 63	64	4
Human Reproduction	65, 66	68 [7]	67, 69, 70	10
Examination Emphasis (%)	25	55	20	100

RESULTS and EXAMINERS' COMMENTS

The examination has a balance of question types and difficulties designed so that a student capable of achieving the acceptable standard would obtain a mark of 50% or better on the examination. Students achieving the standard of excellence would obtain a mark of 80% or better on the examination.

MULTIPLE CHOICE

QUES.	KEY	DIFF.*	QUES.	KEY	DIFF.	QUES.	KEY	DIFF.	QUES.	KEY	DIFF.	QUES.	KEY	DIFF.
1	C	81.6	15	D	39.8	29	A	79.5	43	A	50.0	57	D	65.7
2	C	64.4	16	A	67.6	30	D	74.5	44	B	67.7	58	A	72.8
3	B	64.2	17	A	76.2	31	C	69.2	45	D	60.7	59	B	78.8
4	B	43.7	18	C	60.5	32	B	78.1	46	C	50.5	60	B	35.2
5	A	74.0	19	D	85.4	33	D	70.1	47	B	70.1	61	C	77.7
6	B	71.6	20	C	72.8	34	C	68.9	48	D	71.9	62	D	56.3
7	C	74.7	21	B	63.3	35	B	80.2	49	A	75.9	63	A	61.4
8	D	51.9	22	C	75.2	36	D	74.9	50	A	65.8	64	C	76.1
9	A	73.5	23	B	49.3	37	B	70.4	51	B	57.0	65	B	71.7
10	D	67.8	24	B	72.3	38	A	76.6	52	C	57.4	66	D	77.2
11	C	51.9	25	A	65.8	39	D	86.2	53	B	78.1	67	C	52.9
12	C	70.2	26	D	54.2	40	A	71.3	54	C	74.3	68	A	85.0
13	B	52.1	27	B	82.5	41	D	75.4	55	C	77.9	69	D	74.3
14	B	75.6	28	D	81.0	42	B	63.2	56	A	41.3	70	B	73.7

*Difficulty -- percentage of students answering the question correctly

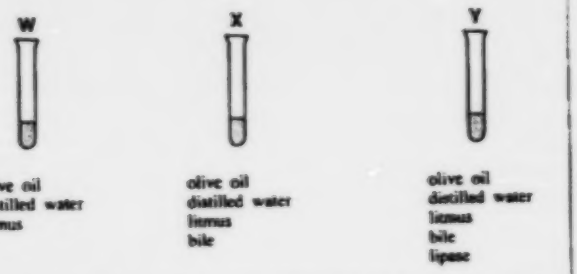
41. The tubules of the nephron help to maintain homeostasis in the body by

A. forming urea
B. removing amino acids
C. collecting filtered proteins
* D. returning material to the blood

Question 41 required an understanding of the basic function and processes of the nephron as it applies to homeostasis (a key biological term). Students achieving at the acceptable standard should know this. The question was answered correctly by 75% of all students with 96% of those students achieving excellence getting it correct.

Use the following information to answer questions 15 and 16.

To investigate the digestion of an organic compound, test tubes W, X, and Y were set up with contents as shown. The pH of the contents of all three test tubes was neutral or adjusted to be neutral at the beginning of the experiment.



Note: Litmus is blue in a neutral or basic solution and red in an acidic solution.

15. When test tubes W, X, and Y are compared, the contents of Test Tube X would most closely simulate (represent) the contents found in the small intestine of a person with

A. gallstones
B. a gastric ulcer
C. normal lipid digestion
* D. a blocked pancreatic duct

Question 15 was intended to be challenging for those students achieving at the standard of excellence. It required students to analyse an experimental design, recall anatomical structures and normal functioning of the digestive system, and then draw a parallel between incomplete test ingredients and abnormal digestive organ function. Many students overlooked the significance of the absence of lipase in tube X; nor did they relate its absence to the function of the pancreas. The question was answered correctly by only 40% of all students but was answered correctly by 75% of those students achieving the standard of excellence.

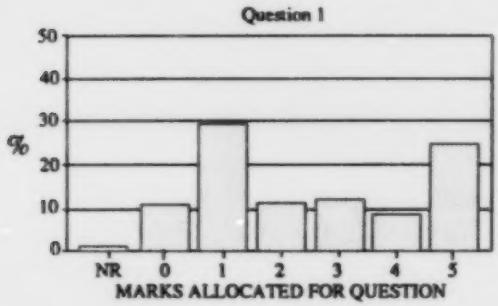
16. After the test tubes and their contents were incubated at 37°C for one hour, it was observed that the contents of Test Tube Y turned red. What caused the pH to change?

* A. Fatty acids
B. Lactic acid
C. Amino acids
D. Nucleic acids

Question 16 required students to interpret results of a laboratory investigation and identify a correct inference. Basic knowledge of nutrient composition and macromolecular digestion was also required. Most students demonstrated a good understanding of the experimental design and the procedure inherent in the investigation. A minority failed to recognize olive oil as a lipid or distinguish between the products of digestion and the wastes of anaerobic respiration. The question was answered correctly by 68% of all students but was answered correctly by 95% of those students achieving the standard of excellence.

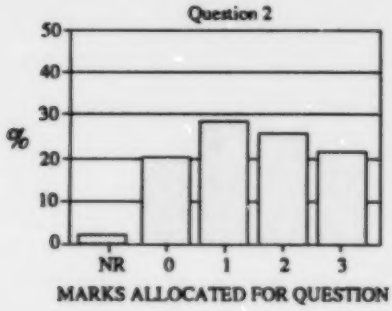
WRITTEN RESPONSE

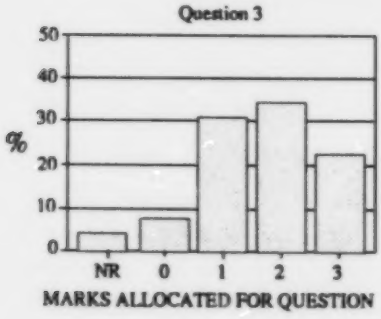
The written-response section of this examination is designed to be challenging for students achieving excellence. A student achieving the acceptable standard should be able to obtain a minimum of two marks for each question.



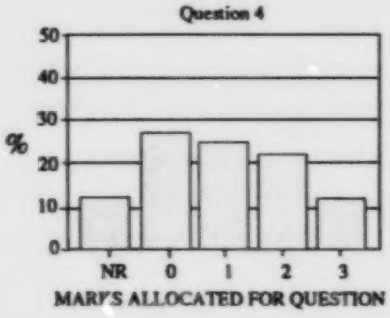
Question 1: Students' responses to the first two parts of the question indicated that most of them could identify diffusion and osmosis as the concepts illustrated by the laboratory investigation. Good understanding of experimental design was indicated by the responses to part three. The bimodal distribution of marks resulted from about an equal number of students incorrectly predicting mass changes based on the diffusion of salt to those correctly predicting mass changes based on osmosis. Some students lost marks because they confused mass with volume (egg shrank, bloated) or predicted a change in mass without describing the direction. On this 5-mark question, the average mark was 2.53 for 50.6% of the available mark.

Question 2: Students' responses to the first part of the question demonstrated that they have an acceptable understanding of the concept of competitive inhibition. However, responses to the second part revealed that considerable confusion exists between the role of enzymes and the role of antibodies. Bacteria were often described as substrates rather than as organisms in which vital enzyme-facilitated metabolic processes occur. On this 3-mark question, the average mark was 1.47 for 49.0% of the available mark.

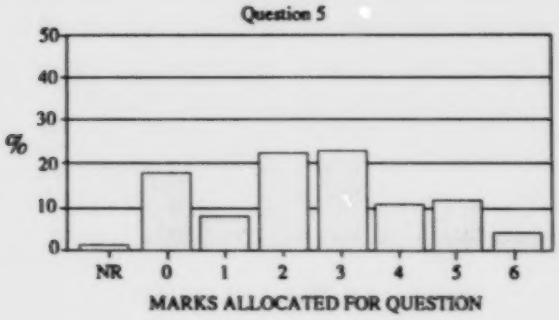




Question 3: Students were required to recall functions of Ca^{2+} and select examples from three different body systems. Students achieving at the acceptable standard were able to provide at least two possible functions; however, some of these students were unable to state how a deficiency in Ca^{2+} would affect the functions identified, e.g., the effect on blood clotting. Students at the acceptable standard also had difficulty identifying the body system to which the process requiring Ca^{2+} belonged. The understanding of biological knowledge required in this question was readily demonstrated by those students who achieved excellence. On this 3-mark question, the average mark was 1.67 for 55.7% of the available mark.

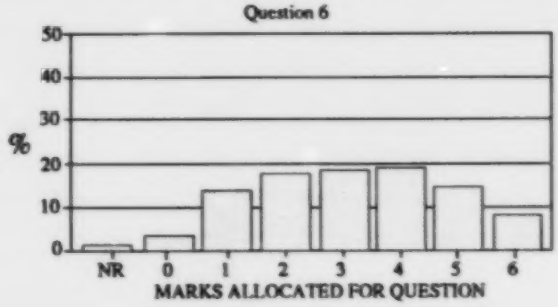


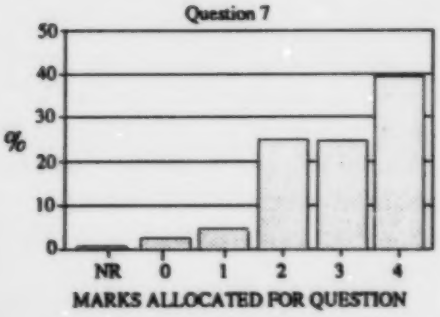
Question 4: Students' responses showed that many of them were unprepared for dealing with the core concept of dialysis. Many students confused the principle on which solute transfer is based in the artificial kidney with the various functions of the real kidney, i.e., force filtration, active transport. Students who did identify diffusion as the main principle went on to describe kidney processes rather than passive regulatory conditions of transfer. On this 3-mark question, the average mark was 1.07 for 35.7% of the available mark.



Question 5: The majority of students did not do very well on this question. The scoring included two marks for demonstrating appropriate written communication skills and an additional four marks for demonstrating an understanding of the biological content. Over 70% of the students obtained only one of the two marks for communication. The majority of students obtained only one or two marks for the biological content. Most students failed to provide carefully developed cause and effect relationships. For example, lower body temperature was explained simply in terms of reduced blood flow rather than in terms of a reduced oxygen supply with a subsequent reduction in cellular respiration. Few addressed the reason for the purplish-blue coloration. The fact that oxy-hemoglobin is red and reduced hemoglobin is bluish purple was not related to the condition. On this 6-mark question, the average mark was 2.50 for 41.7% of the available mark.

Question 6: Based on their responses, most students appear to have a good understanding of the "fight-or-flight" response. They could identify changes that may occur, but they did not provide enough detail; for example, "heart rate increases to pump more blood to the body." Only the excellent students were able to associate the changes with the emergency as a homeostatic adjustment. Students tended to write for a limited audience (biology teachers), assuming that the correct inferences would be made and the details filled in. On this 6-mark question, the average mark was 3.13 for 52.2% of the available mark.

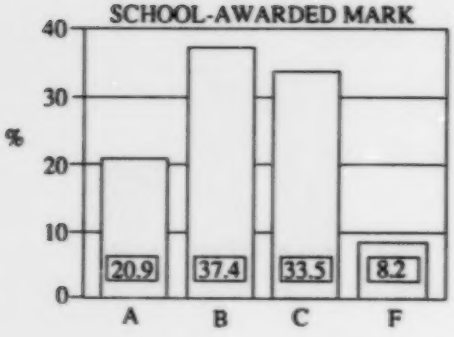


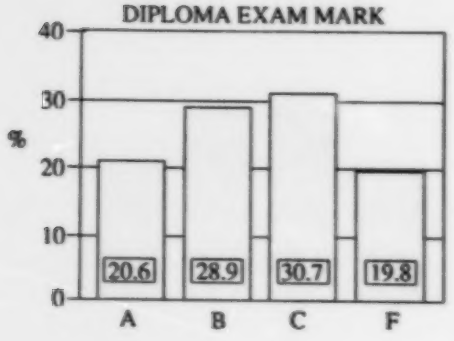


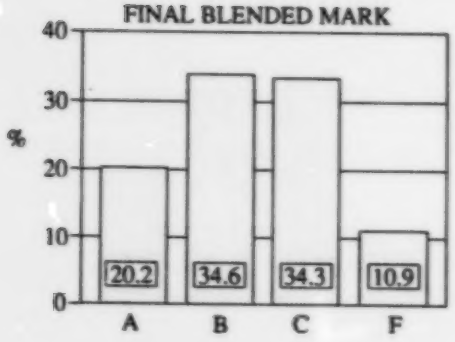
Question 7: Most students answered this well. To achieve full marks, students had to demonstrate a clear understanding of the differences between eggs and follicles, corpora lutea and follicles, progesterone and estrogen. On this 4-mark question, the average mark was 2.91 for 72.8% of the available mark.

For further information, contact Phill Campbell or Lowell Hackman at the Student Evaluation Branch, 427-2948.

Chemistry 30 Diploma Examination Results
January 1990







The summary information in this report is intended to provide teachers, school administrators, students, and interested others with an overview of results from the January 1990 administration of the Chemistry 30 Diploma Examination. The information will be most useful when teachers and administrators use it in conjunction with the detailed school and jurisdiction reports that have been mailed to school jurisdiction offices. An annual provincial report containing a detailed analysis of the combined January and June results will be distributed in the fall of 1990.

DESCRIPTION OF THE EXAM

The Chemistry 30 Diploma Examination consists of three parts: a multiple-choice section of 49 questions worth 70% of the total, a numerical-response section of seven questions worth 10% of the total, and a written-response section of three questions worth 20% of the total.

ACHIEVEMENT OF STANDARDS

The information reported is based on the final blended mark achieved by 6 679 students who wrote the January 1990 Chemistry 30 Diploma Examination.

- 89.1% of these students achieved the acceptable standard (a final blended mark of 50% or higher).
- 20.2% of these students achieved the standard of excellence (a final blended mark of 80% or higher).

PROVINCIAL AVERAGES

- The average school-awarded mark was 67.3%.
- The average diploma exam mark was 64.1%.
- The average final blended mark, representing an equal weighting of the diploma and school marks, was 66.1%.

SUBTEST RESULTS

When analysing any detailed examination results, please bear in mind that subtest averages **cannot** be directly compared.

Machine scored: 66.5%

Written response: 54.0%

•Course Content
- -Chemical Energetics: 62.4%
- -Acids and Bases: 64.8%
- -Oxidation-Reduction: 64.7%

•Process Skills: 60.2%
- -Multiple-choice questions 3, 7, 10, 12, 13, 14, 15, 17, 18, 19, 20, 21, 23, 24, 25, 26, 27, 28, 30, 32, 33, 36, 38, 42, 43, 44, 46, 47, and 49, and written-response questions 1, 2, and 3.

•Cognitive Levels
- -Knowledge: 75.0%
- -Comprehension and Application: 62.4%
- -Higher Mental Activities: 47.9%

EXAMINATION BLUEPRINT

Each question on the examination is classified in two ways: according to the cognitive level demanded by the question and according to the curricular content area being tested. The examination blueprint illustrates the distribution of questions according to these classifications. The numbers in square brackets [ ] indicate written-response questions, those with round brackets ( ) indicate numerical-response questions, and those without brackets

Reporting Category	Questions by Cognitive Level			Examination Emphasis (%)
	Knowledge	Comprehension and Application	Higher Mental Activities	
Chemical Energetics	1, 5, 7, 8, 12, 15	2, 3, 4, 10, 11, 14, 16 (1) (2) [1]	6, 9, 13	32
Acids and Bases	17, 20, 21, 22, 23, 26 [3]	18, 19, 24, 25, 27, 28, 29, 30, 31, 33 (3) [3]	32 (4) [3]	34
Oxidation-Reduction	34, 35, 37, 41, 47, 48 [2]	36, 38, 39, 40, 42, 45, 46 (5) (6) (7) [2]	43, 44, 49 [2]	34
Examination Emphasis (%)	29	54	17	100

Note: For reporting purposes, the Knowledge and Higher Mental Activities components of the written-response section have been combined into the Comprehension and Application category.

RESULTS and EXAMINERS' COMMENTS

The examination has a balance of question types and difficulties designed so that a student capable of achieving the acceptable standard would obtain a mark of 50% or better on the examination. Students achieving the standard of excellence would obtain a mark of 80% or better on the examination.

MULTIPLE CHOICE

QUESTION	KEY	DIFFICULTY*	QUESTION	KEY	DIFFICULTY	QUESTION	KEY	DIFFICULTY
1	C	72.7	18	B	17.8	35	A	73.7
2	B	75.5	19	C	74.2	36	B	70.4
3	D	75.9	20	A	73.5	37	C	80.9
4	D	53.6	21	B	72.2	38	D	72.3
5	C	82.6	22	C	68.3	39	C	61.6
6	A	53.1	23	D	77.6	40	A	35.3
7	A	73.6	24	D	54.4	41	C	81.8
8	C	83.3	25	A	81.4	42	B	80.9
9	B	73.3	26	D	78.9	43	D	59.7
10	D	37.1	27	B	81.9	44	D	38.9
11	C	81.8	28	B	76.3	45	B	79.2
12	A	53.7	29	A	73.0	46	D	86.3
13	C	67.3	30	C	75.0	47	A	78.4
14	B	60.3	31	D	67.7	48	B	83.7
15	B	66.4	32	A	46.3	49	D	28.6
16	C	75.7	33	A	53.6			
17	C	69.3	34	D	78.1			

* Percentage of students answering the question correctly

MULTIPLE CHOICE (continued)

Use the following information to answer question 18.

A student checked four solutions for conductivity and indicator properties, and tabulated the results:

Solution	Conductivity	Bromothymol Blue
I	high	yellow
II	high	green
III	low	green
IV	high	blue

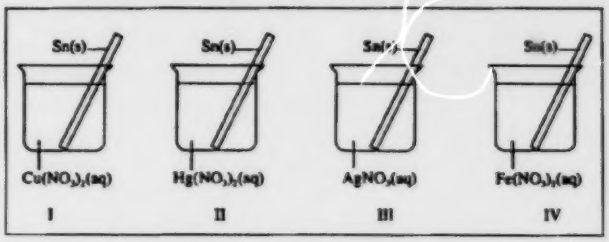
18. The solution most likely to be $KNO_3(aq)$ is

A. I
*B. II
C. III
D. IV

Question 18 showed that half the students (49.8%) recognized that the solution would be neutral and, as a result, that the indicator bromothymol blue would be green, and two thirds (67.8%) knew that the solution would have a high conductivity. Unfortunately, fewer than a fifth of the students (17.8%) were able to link these two concepts and answer the question correctly. This suggests that all students except those achieving the standard of excellence have difficulty in dealing with more than one of these concepts at a time.

Question 46 showed that most students (86.3%) were able to extract information from a diagram and correctly identify the nonspontaneous reaction. This suggests that the students achieving the acceptable standard are able to correctly use the Standard Electrode Potential Table.

Use the following information to answer question 46.



46. A spontaneous reaction will occur in all beakers except

A. I
B. II
C. III
* D. IV

NUMERICAL RESPONSE

In general, most students had no difficulty following the instructions for correctly completing the answer sheet. However, as high as 7.8% failed to read or understand the instructions and filled in the answer sheet using the mathematics instructions. A smaller number, approximately 0.2%, mis-bubbled the fields. Such errors were identified and students received full marks for correct answers. No students were penalized for these errors in recording their answers during this first year of implementation. However, all students at this level of chemistry should know the difference between values obtained from measurements and values from exact numbers in mathematics. Thus, it is appropriate to round off values in science. For example, 1.2345 should be rounded to 1.23 and recorded as 1.23, not 01.2 or 01.23.

Question	Answer	Difficulty (%)
1	15.0	78.1
2	3.35	60.5
3	3.98	75.6
4	11.3	15.8
5	2.67	46.7
6	2.50	48.1
7	1.15	76.4

Use the following information to answer question 4.

During a titration, results were recorded for three trials of the complete neutralization of 0.100 mol/L $Na_2CO_3(aq)$ with HCl(aq).

	Trial 1	Trial 2	Trial 3
Volume of $Na_2CO_3(aq)$	20.0 mL	20.0 mL	20.0 mL
Volume of HCl(aq)	22.5 mL	22.7 mL	22.6 mL

4. The minimum volume of this HCl(aq) required to completely neutralize 20.00 mL of 0.100 mol/L KOH(aq) in millilitres to three digits is _____ mL.

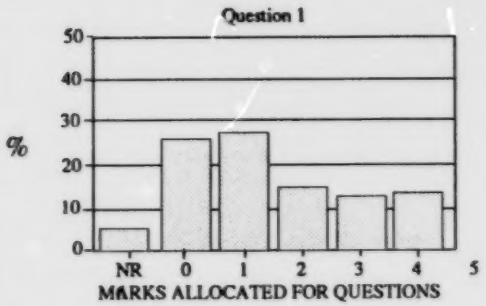
Question 4 provided the highest base of discrimination between strong and fair students (average 15.8%). The most frequent mistake was the omission of the 1:2 ratio between Na_2CO_3 (aq) and the HCl(aq) (37.5%). The next most common error was to select 20.0 mL as the answer (8.0%). The inversion of the ratio was not a significant problem. This suggests that only those achieving the standard of excellence can usually recognize a ratio other than 1:1 in acid-base questions.

Question 6 provided a high base of discrimination between fair and weak students (average 48.1%). As with question 4, the most common mistake was the omission of the ratio (11.0%), and once again the inversion of the ratio was not a significant problem. A surprisingly large group of individuals used a mass-to-mass ratio (11.5%) to yield values of 2.40 g (6.5%) and 4.80 g (5.0%). From this, it appears that students achieving the acceptable standard expect a ratio of some sort in a redox question and are capable of using the ratio.

6. A student found that in an electrochemical cell utilizing lead metal and silver ions, the mass of lead that reacted was 2.40 g. The mass of silver metal that formed at the same time in grams to three digits was _____ g.

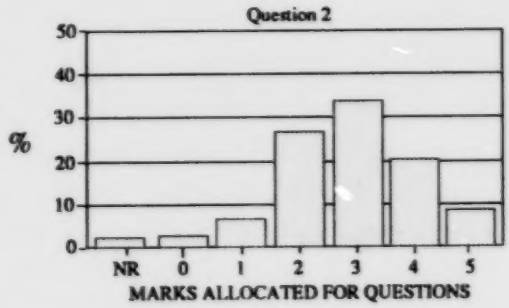
WRITTEN RESPONSE COMMENTS

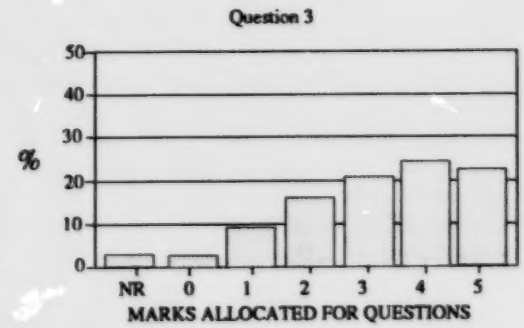
Once again, the level of achievement on the written-response section was very good, with most of the students achieving the acceptable standard or better. There were few No Responses in the second and third questions, which indicates that most students felt they knew something about each topic.



Question 1 showed that one-third of the students were unable to determine what was needed to solve the question and, as a result, obtained a grade of 0. The most popular misconception for this group was that the water was burned and that the burning produced the energy. This led them to try to calculate the molar heat of combustion for both gaseous and liquid forms. For those students who successfully identified what was required, the common errors detected were: the use of 2.01 J/g• °C as the specific heat capacity for condensed steam; failure to recognize that their calculated values contradicted their statement, significant digits, units; and failure to clearly explain why the steam burn was more severe. In general, students who used calculations to support their written answer did better than students who just did a series of calculations. On this 4-mark question, the average mark was 1.46 for 36.5% of the available mark.

Question 2 was done relatively well. Most students were able to identify and write the correct half-reactions and include the states. In most cases, students were able to determine the electrical potential of the cell, though some students omitted the units at this stage. Almost all students were able to identify iron as the substance oxidized, but only two-thirds of the students recognized that tin or any other "inert" electrode (carbon, platinum, silver, iron, etc.) could serve as the cathode. Half the students selected 0.0V as the voltage of equilibrium. Other values selected were ±0.27V, +0.28V, +0.135V, ±0.55V, etc. The greatest difficulty students had was explaining the reason for the voltmeter reading. On this 5-mark question, the average mark was 2.88 for 57.6% of the available mark.

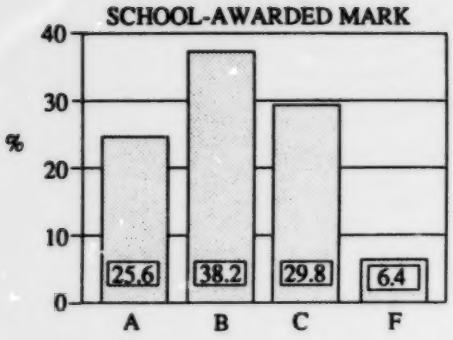


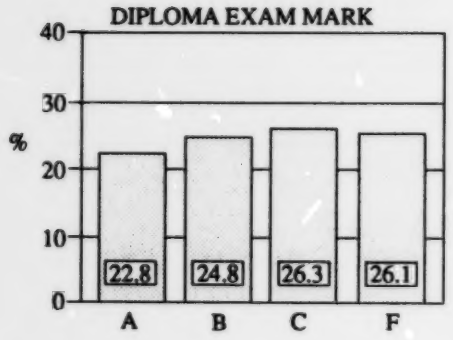


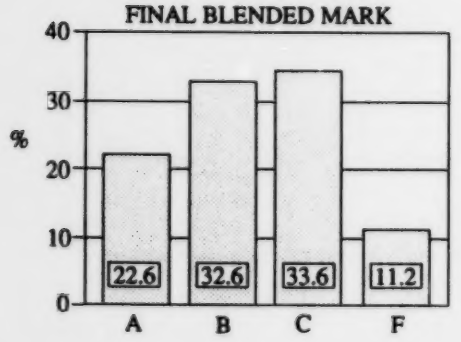
Question 3 was done well. Most students displayed good graphing skills. Very few individuals swapped axes or "connected the dots." The major graphing error was the failure to select a suitable scale for one or both of the axes. In general, the graphing skills appear much improved over last year, and the students seem better able to interpret the graph. The majority of the students correctly identified the equivalence point and selected the appropriate indicator. A few students identified the equivalence point as the last point on the graph, and several selected pH 7 as the equivalence point. These individuals were usually unable to select a suitable indicator. Most students correctly identified the acid as a weak acid, though there was some confusion between the strength of the acid and its concentration. As in the previous questions, students had difficulty in framing a well-written response to explain their accurate conclusion. On this 5-mark question, the average mark was 3.20 for 64.0% of the available mark.

For further information, contact Phill Campbell or Don Loerke at the Student Evaluation Branch, 427-2948.

Physics 30 Diploma Examination Results
January 1990







The summary information in this report is intended to provide teachers, school administrators, students, and interested others with an overview of results from the January 1990 administration of the Physics 30 Diploma Examination. The information will be most useful when teachers and administrators use it in conjunction with the detailed school and jurisdiction reports that have been mailed to school jurisdiction offices. An annual provincial report containing a detailed analysis of the combined January and June results will be distributed in the fall of 1990.

DESCRIPTION OF THE EXAM

The Physics 30 Diploma Examination consists of two parts: a multiple-choice section of 49 questions worth 70% of the total, and a written-response section of four questions worth 30% of the total.

ACHIEVEMENT OF STANDARDS

The information reported is based on the final blended marks achieved by 3 121 students who wrote the January 1990 Physics 30 Diploma Examination.

- 88.8% of these students achieved the acceptable standard (a final blended mark of 50% or higher).
- 22.6% of these students achieved the standard of excellence (a final blended mark of 80% or higher).

PROVINCIAL AVERAGES

- The average school-awarded mark was 69.3%.
- The average diploma exam mark was 63.1%.
- The average final blended mark, representing an equal weighting of the diploma and school marks, was 66.6%.

SUBTEST RESULTS

When analysing any detailed examination results, please bear in mind that subtest averages cannot be directly compared.

Machine scored: 69.0%

Written response: 48.9%

- Course Content
  - Light: 56.6%
  - Electric and Magnetic Fields: 69.6%
  - Electromagnetic Radiation: 54.3%
  - Structure of Matter: 68.4%
  - Modern Physical Theories: 62.2%
- Process Skills: 53.9%
  - Multiple-choice questions 2, 4, 5, 7, 17, 20, 21, 23, 26, 28, 35, 36, 41, 43, 47, and 48, and written-response questions 1, 2, 3, and 4.
- Cognitive Levels
  - Knowledge: 72.4%
  - Comprehension and Application: 67.0%
  - Higher Mental Activities: 45.3%

EXAMINATION BLUEPRINT

Each question on the examination is classified in two ways: according to the cognitive level demanded by the question and according to the curricular content area being tested. The examination blueprint illustrates the distribution of questions according to these classifications. The numbers in square brackets [ ] indicate written-response questions, and those without brackets indicate multiple-choice questions.

Reporting Category	Questions by Cognitive Level			Examination Emphasis (%)
	Knowledge	Comprehension and Application	Higher Mental Activities	
Light	3, 8, 9, 11	1, 2, 4, 5, 6, 10	7 [4]	23
Electric and Magnetic Fields	12, 13, 19, 22	14, 15, 16, 18, 20, 21, 23, 24, 25 [1]	17, 26†	27
Electromagnetic Radiation	27, 29	28	[3]	14
Structure of Matter	33, 34, 38, 42	30, 31, 32, 35, 36, 37, 39, 40	41, 43	20
Modern Physical Theories	44, 46, 49	45, 47 [2]	48	16
Examination Emphasis (%)	24	50	26	100

RESULTS and EXAMINERS' COMMENTS

The examination has a balance of question types and difficulties designed so that a student capable of achieving the acceptable standard would obtain a mark of 50% or better on the examination. Students achieving the standard of excellence would obtain a mark of 80% or better on the examination.

MULTIPLE CHOICE

QUESTION	KEY	DIFFICULTY *	QUESTION	KEY	DIFFICULTY	QUESTION	KEY	DIFFICULTY
1	C	92.0	18	A	84.7	35	B	42.9
2	C	47.8	19	B	81.1	36	A	45.4
3	C	52.0	20	D	78.2	37	D	83.0
4	B	84.1	21	A	73.9	38	B	84.0
5	B	58.6	22	D	72.3	39	A	72.9
6	D	61.0	23	C	59.1	40	D	83.7
7	B	67.5	24	B	65.9	41	A	46.5
8	A	68.7	25	D	77.0	42	D	61.4
9	D	67.1	26	Question deleted†		43	C	69.0
10	A	69.7	27	A	90.4	44	A	75.6
11	A	70.5	28	A	62.4	45	D	60.3
12	C	67.4	29	B	80.2	46	C	69.1
13	A	64.8	30	C	75.3	47	B	67.1
14	B	55.4	31	C	62.5	48	D	42.0
15	B	74.6	32	D	83.3	49	D	77.8
16	C	66.7	33	B	69.8			
17	C	69.7	34	C	75.3			

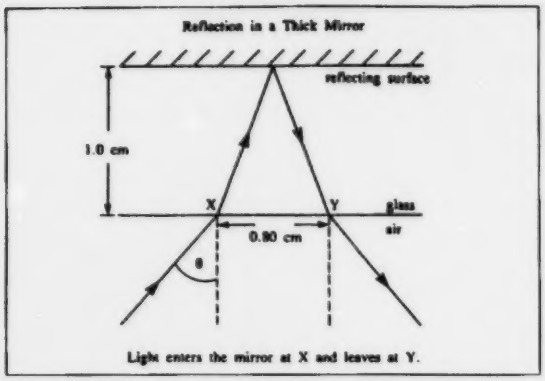
*Percentage of students answering the question correctly

†Question 26 was dropped from the examination as the task set in the item was not the same for strong and for weak students.

MULTIPLE CHOICE (continued)

A high level of competence in calculations was expected from all students. Students achieving the standard of excellence were expected to transfer knowledge to unusual problems and to use scientific generalizations effectively. Student performance on the multiple-choice section of the examination was generally satisfactory. As usual, students found calculation questions the easiest and had the most difficulty with questions demanding use of generalizations such as Newton's Law of Motion or the conservation laws. Detailed comments on questions 7 and 35 follow.

Use the following information to answer question 7.



7. If the refractive index of the glass is 1.6, the angle of incidence θ must be

A. 40°
*B. 36°
C. 22°
D. 13°

Question 7 required students to use the properties of the isosceles triangle to calculate the angle of refraction and then to use Snell's Law to calculate the angle of incidence. Over two-thirds of the students were successful, and even of the weakest group of students, nearly half were able to select the correct answer. Shorter calculations on the examination were solved correctly by three-quarters or more of the students.

Use the following information to answer questions 35 and 36.

Observations in Photoelectric Experiments

I. The magnitude of the current increases.
II. The magnitude of the current decreases.
III. The magnitude of the current is constant.
IV. The energy of the photoelectrons increases.
V. The energy of the photoelectrons decreases.
VI. The energy of the photoelectrons is constant.

35. In a photoelectric experiment, a student increases the intensity of the incident light while maintaining a constant frequency. What are the effects on the magnitude of the photoelectric current and on the energy of the photoelectrons?

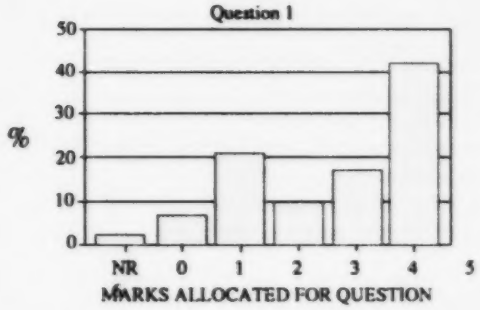
A. I and IV
*B. I and VI
C. III and IV
D. III and VI

Question 35 required students to make predictions of the key phenomena of the photoelectric effect. The manipulated variable and the variable held constant are clearly identified in the question, and the students were asked to predict the effects on two responding variables. Less than half of all students were successful, and for the weakest group of students, results were no better than could be expected from random guessing.

The multiple-choice average score of 69.0% was approximately 2.0% lower than could have been expected from the initial field-test results.

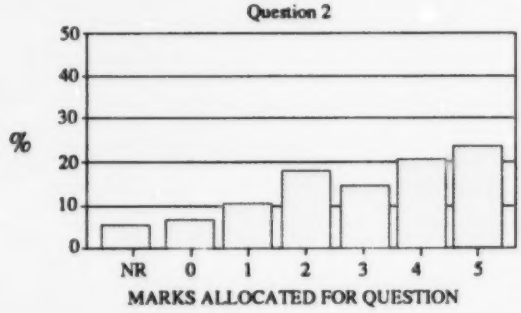
WRITTEN RESPONSE

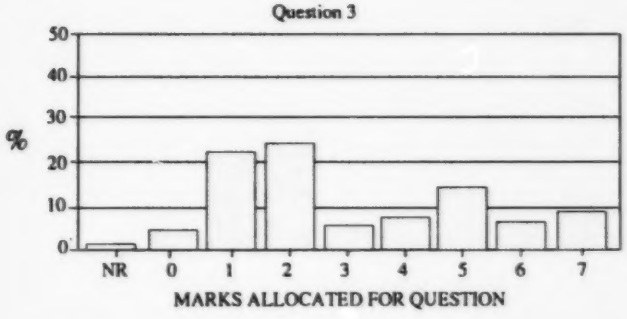
The four questions in the written-response section were chosen from four of the five content strands for physics. Students performing at the acceptable standard were expected to answer questions 1 and 2 well, and to answer the first part of question 3. Students performing at the standard of excellence were expected to answer questions 1 and 2 almost perfectly, and to get half marks or more on questions 3 and 4.



Question 1 was well answered by most students. Nearly half the students could both solve the problem and provide reasonable documentation for their solution. A significant number of students lost marks by arbitrarily setting the mass of the Earth as 1.0 kg rather than $1.0m_e$ or 5.98×10^{24} kg. Similarly, the radius of the Earth was assigned the value of 1.0 m. Some students showed confusion between the terms mass and weight. On this 4-mark question, the average mark was 2.60 for 65.0% of the available mark.

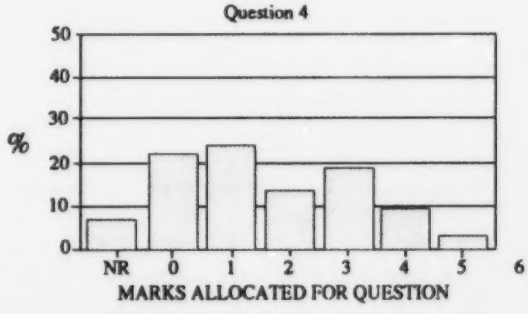
Question 2 showed a great variance in student responses. Many students gave impressive responses, with the correct answer supported by fully documented computations. A significant minority, however, still assumed that the Newtonian formula, $E_k = 0.5mv^2$, only needed a mass correction to be valid at relativistic energies. On this 5-mark question, the average mark was 2.91 for 58.2% of the available mark.





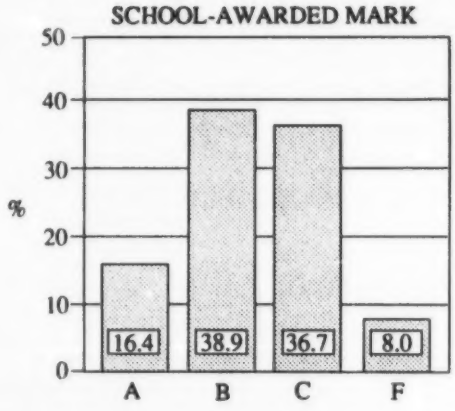
Question 3 was designed to test students' problem-solving skills. Half the students were unable to extract any information from either the data table or from the curved graph. Of those who could extract some information, most chose to plot wavelength and antinode separation. Fewer chose to plot antinode separation and the reciprocal of frequency. Both methods were accepted. Some students lost a mark for calculating a single estimate for the slit separation rather than basing the estimate on an averaging process. On this 7-mark question, the average mark was 3.10 for 44.2% of the available mark.

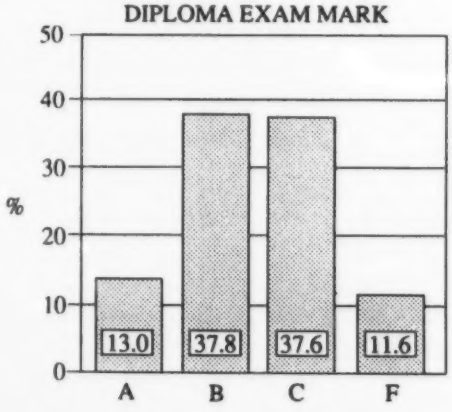
Question 4 was a new type, emphasizing the organisation and communication of verbal information. The results were lower than had been expected from field-test data, but many students wrote hurried answers, indicating that they may have been short of time. Students limited themselves unnecessarily in their discussion of similarities, in contrast to their treatment of differences, which was usually of sufficient depth. For the last part, students interpreted results in terms of theories supported rather than in terms of experimental observations. On this 5-mark question, the average mark was 1.65 for 33.0% of the available mark.

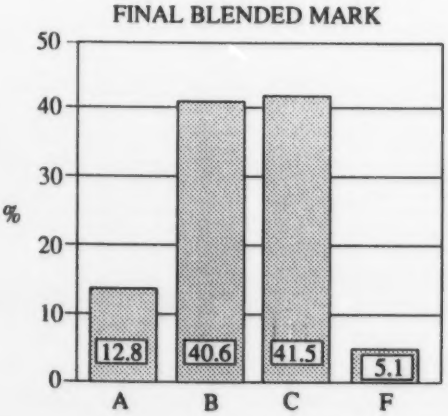


For further information, contact Phill Campbell or Jack Edwards at the Student Evaluation Branch, 427-2948.

English 30 Diploma Examination Results
June 1990







The summary information in this report is intended to provide teachers, school administrators, students, and the general public with an overview of results from the June 1990 administration of the English 30 Diploma Examination. The information is most helpful when used in conjunction with the detailed school and jurisdiction reports that have been mailed to schools and school jurisdiction offices. The first annual provincial report containing a detailed analysis of the combined January and June results is available this fall.

DESCRIPTION OF THE EXAM

The English 30 Diploma Examination consists of two parts: a written-response section worth 50% and a multiple-choice section worth 50%.

ACHIEVEMENT OF STANDARDS

The information reported is based on the final blended marks achieved by 13 506 students who wrote the June 1990 examination.

- 94.9% of these students achieved the acceptable standard (a final blended mark of 50% or higher).
- 12.8% of these students achieved the standard of excellence (a final blended mark of 80% or higher).

PROVINCIAL AVERAGES

- The average school-awarded mark was 65.9%.
- The average diploma exam mark was 64.7%.
- The average final blended mark, representing an equal weighting of the diploma and school marks, was 65.8%.

PART A: WRITTEN RESPONSE

Part A: Written Response is written at a different time from Part B: Reading (Multiple Choice) and contributes 50% of the total examination mark. Students are required to complete two writing assignments, each of which assesses a variety of writing and thinking skills.

Readers will find the results most meaningful in the context of the assignments and the scoring descriptors. The most useful starting place for reviewing these results is at the (3) SATISFACTORY level. Such work exceeds the pass mark of 50%. The scoring guides that describe proficiency levels are in the *English 30 Diploma Examination Update for 1991*, which is available in all schools.

The table below outlines the requirements for each assignment, the categories for scoring each assignment, the amount each category contributes to the total mark (Parts A and B combined), and the percentage of students achieving at the various levels of expectation.

PART A: WRITTEN-RESPONSE BLUEPRINT
and
PERCENTAGE DISTRIBUTION OF RESULTS

DESCRIPTION OF THE WRITING ASSIGNMENT	SCORING CATEGORY	PROPORTION OF TOTAL MARK (%)	PERCENTAGE DISTRIBUTION OF SCORES					
			(5) EXCELLENT	(4) PROFICIENT	(3) SATISFACTORY	(2) LIMITED	(1) POOR	(0) INS
Minor Assignment The student is required to write a personal response to the reading selection provided in the examination.	1. Thought and Detail	7.5	3.4	31.9	55.2	8.5	0.6	0.4
	2. Writing Skills	7.5	3.6	32.3	54.8	8.3	0.6	0.4
Major Assignment The major assignment maintains a thematic connection to the minor assignment. The student is required to demonstrate an appreciation of literary works studied through a discussion of theme and the literary techniques that support that theme. The student is also required to synthesize thoughts clearly and correctly in writing.	1. Total Impression	5.0	2.8	18.3	55.3	22.1	1.2	0.3
	2. Thought and Detail	12.5	2.7	19.0	45.4	30.2	2.4	0.3
	3. Organization	7.5	2.8	20.0	60.4	15.8	0.8	0.3
	4. Matters of Choice	5.0	3.4	23.3	59.0	13.0	1.0	0.3
	5. Matters of Convention	5.0	5.2	31.0	50.1	12.2	1.2	0.3

Note: The shaded portion represents the percentage of students who achieved or exceeded a SATISFACTORY level of performance.

EXAMINERS' COMMENTS

MINOR ASSIGNMENT: Personal Response to Literature

Students seemed able to relate with ease to the reading selection, which was a closing excerpt from *The Wabeno Feast*, a Canadian novel. Students were evaluated on how they used the selection to comment on the topic of being an "outsider" rather than on their interpretations of the selection.

Markers found that responses to this assignment were a pleasure to read. Typical responses were focused on experiences of being separate and alone and were clearly related to a quotation from the selection. Occasionally, students discussed the topic without quoting specifically from the selection and without relating a personal anecdote. This more generalized, philosophical response to the assignment was accepted if the student's response could be evaluated in terms of how well it related to the experience in the selection and to the assigned topic. Markers observed, however, that the most effective responses were those in which students gave concrete illustrations of the topic from their personal experiences.

MAJOR ASSIGNMENT: Literature Composition

Students demonstrated through their responses to the major assignment that they were generally comfortable with and successful at adapting a wide variety of literature to the topic. The majority of students focused their responses on the topic, and established and developed a controlling idea. The factors that determined the level of student achievement were fluency, focus, and control of both expression and subject matter (thoughtful literary interpretations).

Students achieving overall scores of "3" SATISFACTORY frequently presented a reasonable controlling idea but did not develop it to any degree. Such students identified and described an outsider from literature, but they neglected to explore what the author might be saying about the condition of being an outsider.

Students achieving overall scores of 4s and 5s showed confidence in their use of language and in their ability to interpret the literature insightfully. Such students frequently extended their discussions well beyond the assessment and description of characters as outsiders to discussions of the author's broader implications. These students had something worthwhile to say and they said it well.

PART B: READING (MULTIPLE CHOICE)

RESULTS

Results are in average raw scores.

Total Part B: 46.7 out of 70

Subtest Results:*

- Course Content
  - Meanings: 20.8 out of 32
  - Critical Response: 16.8 out of 24
  - Human Experience and Values: 9.1 out of 14

* Readers are cautioned NOT to compare subtest results because the subtests are not of equal difficulty. Readers should compare these provincial subtest results with their own school results.

EXAMINATION BLUEPRINT

Part B: Reading (Multiple Choice) has a value of 70 marks, one mark for each multiple-choice question. Each question is classified in two ways: according to the curricular content area being tested and according to the thinking (process) skill demanded by the question. The examination blueprint illustrates the distribution of questions in June 1990 according to these classifications.

Question Type by Course Content	Question Type by Thinking Skills			Examination Emphasis (%)
	Literal Understanding	Inference and Application	Evaluation	
Meanings	4, 5, 17, 44	1, 8, 9, 24, 27, 28, 29, 31, 32, 35, 39, 41, 58, 59, 60, 61, 62, 63, 68	6, 7, 37, 40, 46, 48, 53, 56, 64	32 items (23%)
Critical Response	2	3, 10, 13, 23, 25, 30, 33, 34, 36, 43, 50, 54, 57, 65, 66, 69	26, 38, 42, 47, 55, 67, 70	24 items (17%)
Human Experience and Values		11, 12, 14, 15, 16, 18, 19, 20, 51	21, 22, 45, 49, 52	14 items (10%)
Examination Emphasis (%)	5 items (4%)	44 items (31%)	21 items (15%)	70 items (50%)

The following table shows question-by-question results and the keyed answers. There is a parallel table in the school and jurisdiction reports showing the percentage of students selecting each alternative. From this table, teachers can determine areas of strength and weakness in the achievement of their students relative to the province as a whole and, consequently, areas of strength and weakness in their programs.

QUES.	KEY	DIFF.*	QUES.	KEY	DIFF.	QUES.	KEY	DIFF.	QUES.	KEY	DIFF.	QUES.	KEY	DIFF.
1	C	72.0	15	C	71.4	29	D	67.2	43	D	83.1	57	C	69.8
2	A	74.1	16	B	78.7	30	D	53.8	44	C	76.3	58	D	58.6
3	A	69.8	17	B	61.8	31	C	71.6	45	A	45.5	59	C	86.6
4	B	66.4	18	D	43.3	32	B	86.3	46	C	63.0	60	D	62.0
5	C	33.5	19	D	62.3	33	C	77.8	47	B	71.7	61	A	60.5
6	D	63.6	20	A	53.4	34	C	71.1	48	B	71.3	62	D	46.2
7	B	81.3	21	C	45.5	35	D	81.9	49	D	66.5	63	C	47.9
8	B	54.6	22	A	76.1	36	A	65.2	50	A	77.4	64	B	58.3
9	D	80.6	23	C	84.4	37	B	38.3	51	B	58.3	65	C	69.6
10	D	61.6	24	A	85.8	38	B	47.8	52	C	68.5	66	A	68.6
11	B	90.2	25	B	75.9	39	A	59.2	53	B	65.4	67	B	78.5
12	A	66.0	26	D	71.8	40	A	77.7	54	B	65.6	68	D	53.5
13	B	58.9	27	C	67.1	41	A	67.6	55	C	78.5	69	D	75.0
14	A	83.4	28	A	58.9	42	D	59.2	56	A	57.6	70	A	71.7

*Difficulty -- percentage of students answering the question correctly

EXAMINERS' COMMENTS

During the marking session, a committee of English 30 classroom teachers reviewed the June 1990 English 30 Part B: Reading (Multiple Choice) examination to determine whether the standards embedded in the readings and the questions were appropriate and fair. The committee members concurred that the June 1990 examination set a reasonable standard of achievement for graduating English 30 students. The teachers also stated that the examination would clearly distinguish between high-achieving and low-achieving students.

Students' performance on the Part B section confirmed the teachers' expectations: performance was generally satisfactory, and results demonstrate that students who achieved high total scores (Part A: Written Response plus Part B: Reading) were those who achieved the highest scores on Part B: Reading (Multiple Choice). The results also indicate that these students consistently employed their skills of close reading and confirmed their ideas by re-examining the text. These students appear to have read the questions and the alternative answers very carefully.

The table below relates to four selected questions from the examination. For each question, three statistical references are noted: the percentage of all students choosing the correct answer, the percentage of students answering correctly who achieved the STANDARD OF EXCELLENCE (80% and better, or "A") on Parts A and B combined, and the percentage of students answering correctly who achieved the ACCEPTABLE STANDARD (50% to 64%, or "C") on Parts A and B combined. The comments following the table discuss some of the decisions that students made and some of the skills that they used to answer correctly.

Percentage of Students Correctly Answering Selected Questions
(Parts A and B Combined)

Student Group	Question Number			
	4	5	62	63
All Students	66.4	33.5	46.2	47.9
Students Achieving the Standard of Excellence (80% and better, or "A")	88.5	61.7	76.6	85.3
Students Achieving the Acceptable Standard (50% to 64%, or "C")	57.2	22.3	33.6	32.5

Questions

4. That Canada's size is a main factor in its coming to terms with its identity is indicated by the phrase

   A. "Mythologies are huge cairns" (line 7)
   *B. "sheer weight of geography" (line 29)
   C. "the largest, most powerfully defined national soul" (lines 34-35)
   D. "a country of immensely varied beauty and landscape" (lines 96-97)

Comments

Question 4 required students to read closely and to consider context before choosing an answer; essentially, it assessed literal reading skills. Students found this question to be of average difficulty with 66.4% of the students choosing B, the correct alternative. Most students were able to equate "weight of geography" with "size," a low level inference. Students achieving the standard of excellence on the whole examination were particularly successful: 88.5% answered correctly. Students achieving the acceptable standard on the whole examination did reasonably well: 57.2% answered correctly.

EXAMINERS' COMMENTS (continued)

Questions

5. Which of the following does the author identify as being the initiating factor in the process of defining a "national soul" (line 32) for both Canada and Russia?

   A. Size
   B. History
   *C. Literature
   D. Introversion

Questions 4 and 5 are part of a set of ten questions based on an excerpt from "¿Aca nada?," a lecture by Robertson Davies. The teachers who reviewed the examination for appropriateness of standards agreed that the vocabulary and style of the selection are challenging but quite appropriate for English 30 students.

62. The statement "A wild animal never plays for the other side" (line 57), suggests in context that wild animals

   A. are self-destructive
   B. have no sense of competition
   C. have a keen sense of competition
   *D. are not handicapped by complexity

63. The author's closing comments (lines 52 to 65) imply that human purity and simplicity have been corrupted by

   A. love of life
   B. love of liberty
   *C. desire for knowledge
   D. desire for material gain

Questions 62 and 63 are part of a set of ten questions based on an excerpt from "Africa", an essay by Lance Morrow that was published in Time *magazine in February 1987. The text on which questions 62 and 63 are based is descriptive and somewhat philosophical. However, the teachers who reviewed the examination for appropriateness of standard agreed that the text was beautiful, that it was appropriate – if somewhat challenging – and that it dealt with an important idea.*

Comments

Question 5 required students to read the stem closely -- particularly the phrase "initiating factor" -- and to reread the excerpt beginning at line 32 and following through to line 39, the end of the next paragraph. The 33.5% of the students who did this read "the talk of the Canadian soul has begun for us, as it began for Russia, with our writers" and so chose C, the correct alternative. Of the students achieving the standard of excellence, 61.7% answered this question correctly. Only 22.3% of the students achieving the acceptable standard answered correctly. Interestingly, 34.6% of this group chose alternative A as the correct response. It is likely that these students did not use the text as the source of their response and so, to some degree, confused questions 4 and 5, believing them to be asking essentially the same question.

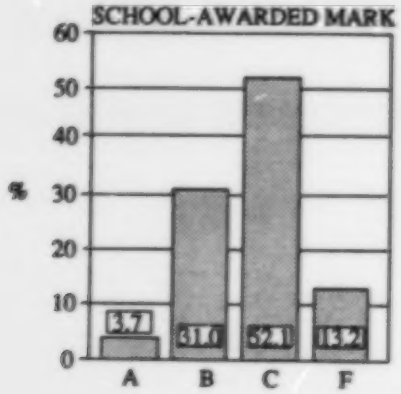
Question 62 required students to relate the contextual meaning of a significant quotation to the overall meaning of the essay. Inherent in the question is the requirement that students be able to interpret meaning beyond the literal level. This question discriminated well between students achieving the standard of excellence and students achieving the acceptable standard: 76.6% of the students achieving the standard of excellence answered correctly, while only 33.6% of the students achieving the acceptable standard chose the correct alternative. Many of this second group of students chose either B (30.0%) or C (31.4%), probably because of the word "competition," with which they connected the phrase "plays for the other side." If these students had confirmed their initial opinions by re-examining the quote in context, probably more of them would have chosen the correct alternative.

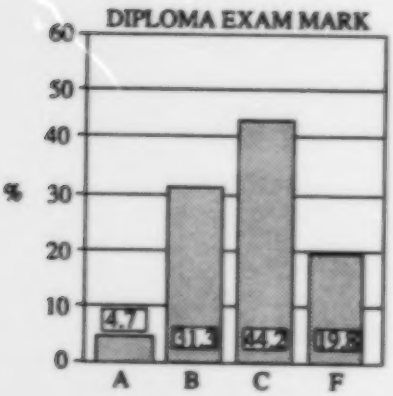
Question 63 also required students to infer the meaning of particular lines in relation to the meaning of the whole essay. The skill being assessed is careful contextual reading. Again, this question was relatively difficult; only 47.9% of the students chose the correct alternative. Many of the students achieving the standard of excellence (85.3%) answered correctly. These students used their skills of close reading to review lines 52 to 65 before answering the question. Very few students achieving the acceptable standard (32.5%) answered correctly. The 56.9% of the students who wrongly chose alternative D probably did not reread the stem in context and had a "knee jerk" reaction to the question. The author does not state or imply anywhere in his essay that "desire for material gain" is the cause of the corruption of human purity and simplicity.

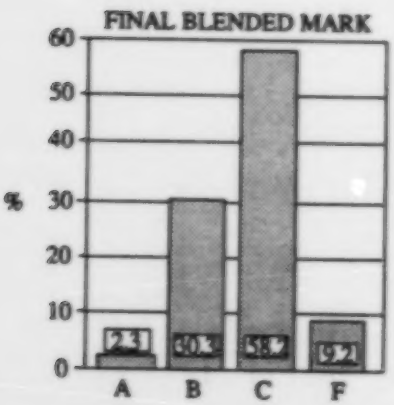
The results for questions 62 and 63 confirm that even when texts appear straightforward, some students are not reading closely nor are they making refined judgments. Students who are answering correctly have demonstrated that they can interpret text, infer meaning from context, and relate parts of a text to the whole.

For further information, contact Elana Scraba or Gail Gates at the Student Evaluation Branch, 427-2948.

English 33 Diploma Examination Results
June 1990







The summary information in this report is intended to provide teachers, school administrators, students, and the general public with an overview of results from the June 1990 administration of the English 33 Diploma Examination. The information is most helpful when used in conjunction with the detailed school and jurisdiction reports that have been mailed to schools and school jurisdiction offices. The first annual provincial report containing a detailed analysis of the combined January and June results is available this fall.

DESCRIPTION OF THE EXAM

The English 33 Diploma Examination consists of two parts: a written-response section worth 50% and a multiple-choice section worth 50%.

ACHIEVEMENT OF STANDARDS

The information reported is based on the final blended marks achieved by 4 589 students who wrote the June 1990 examination.

- 90.8% of these students achieved the acceptable standard (a final blended mark of 50% or higher).
- 2.3% of these students achieved the standard of excellence (a final blended mark of 80% or higher).

PROVINCIAL AVERAGES

- The average school-awarded mark was 60.0%.
- The average diploma exam mark was 59.8%.
- The average final blended mark, representing an equal weighting of the diploma and school marks, was 60.3%.

PART A: WRITTEN RESPONSE

Part A: Written Response is written at a different time from Part B: Reading (Multiple Choice) and contributes 50% of the total examination mark. Students are required to complete three writing assignments, each of which assesses a variety of writing and thinking skills.

Readers will find the results most meaningful in the context of the assignments and the scoring descriptors. The most useful starting place for reviewing these results is at the (3) ADEQUATE level. Such work exceeds the pass mark of 50%. The scoring guides that describe proficiency levels are in the *English 33 Diploma Examination Update for 1991*, which is available in all schools.

The table below outlines the requirements for each assignment, the categories for scoring each assignment, the amount each category contributes to the total mark (Parts A and B combined), and the percentage of students achieving at the various levels of expectation.

PART A: WRITTEN-RESPONSE BLUEPRINT and PERCENTAGE DISTRIBUTION OF RESULTS

DESCRIPTION OF THE WRITING ASSIGNMENT	SCORING CATEGORY	PROPORTION OF TOTAL MARK (%)	PERCENTAGE DISTRIBUTION OF SCORES					
			(5) PROFICIENT	(4) CAPABLE	(3) ADEQUATE	(2) LIMITED	(1) POOR	(0) INS
Personal Response to Literature The student is required to discuss an aspect of literature from a personal perspective.	1. Thought and Detail	10.0	1.7	22.0	54.7	19.8	1.4	0.5
	2. Organization	5.0	1.5	22.7	61.2	13.3	0.8	0.5
	3. Matters of Choice	5.0	2.6	23.7	59.8	12.1	1.2	0.5
	4. Matters of Convention	5.0	3.6	29.0	49.4	15.1	2.4	0.5
Functional Writing The assignment is functional in nature. The student is required to write about a given situation.	1. Thought and Detail	10.0	1.1	16.0	59.4	22.5	0.7	0.3
	2. Organization	2.5	1.5	20.5	64.9	12.4	1.4	0.3
	3. Writing Skills	2.5	2.1	23.0	54.6	18.0	2.0	0.3
Response to Visual Communication The writing assignment is connected to one or more photographs and/or cartoons. The student is required to write about main ideas and techniques of visual communication.	1. Thought and Detail	5.0	1.5	12.1	46.1	35.2	3.5	1.6
	2. Organization	2.5	1.5	11.2	57.7	26.1	2.0	1.6
	3. Writing Skills	2.5	1.9	17.0	57.2	19.4	2.9	1.6

Note: The shaded portion represents the percentage of students who achieved or exceeded an ADEQUATE level of performance.

EXAMINERS' COMMENTS

On Part A: Written Response, students are expected to express their ideas clearly, thoughtfully, and coherently, and to use supporting details to develop these ideas in all three writing assignments. Students should also demonstrate effective diction and syntax, and control of grammar and mechanics. Most students understood and responded satisfactorily to all three assignments on the June 1990 Part A: Written Response examination.

In answering the PERSONAL RESPONSE TO LITERATURE assignment, students appeared to respond quite genuinely to the excerpt from Margaret Atwood's *Cat's Eye*. Consequently, many students did not use a standard five-paragraph essay organization. Students were able to draw on features of the excerpt they found most meaningful and to incorporate these features in their introductions. The organization of their essays then evolved as the writers explored their responses to features of the text.

Many students achieving the acceptable standard wrote about infatuation, dating, "true love;" others focused on contrasts between public and private behaviors. Many students achieving the standard of excellence approached the assignment with a "three-pronged" focus: interests, behaviors, and opinions. The majority of students described a personal anecdotal experience in response to the assignment. Students used quotations from the selection judiciously and often thoughtfully. More so than in the past, students referred to other literature they had studied. Markers noted that most papers were a pleasure to read because of the wide variety of responses to this assignment.

Most students produced satisfactory work on the FUNCTIONAL WRITING assignment, which required students to write a letter requesting a solution to a problem. In most assignments, the tone seemed appropriate. Students achieving the acceptable standard used information supplied in the assignment without elaborating on it. Less successful students often omitted some of the details provided in the assignment. Letters written by students achieving the standard of excellence were enhanced by plausible details; in many cases, the information was organized in original ways.

The level of achievement on the RESPONSE TO VISUAL COMMUNICATION assignment continues to improve with each examination administration. Many students are writing substantial compositions of high quality. Some markers noted that the caption provided for this particular photograph helped students to focus their work. Students achieving the standard of excellence chose a general idea suggested by the photograph and explained how the details in the photograph and the photographer's techniques reinforced this idea. However, less successful students had problems organizing their ideas coherently.

It is important to note that students must answer the RESPONSE TO VISUAL COMMUNICATION assignment with a sustained response. Very brief responses will continue to be deemed insufficient.

PART B: READING (MULTIPLE CHOICE)

RESULTS

Results are in average raw scores.

Total Part B: 40.9 out of 69

Subtest Results:*

- Course Content
  - Meanings: 15.6 out of 26
  - Relationships: Form and Content: 9.4 out of 15
  - Human Experience and Values: 8.5 out of 15
  - Life Skills: 7.4 out of 13

* Readers are cautioned NOT to compare subtest results because the subtests are not of equal difficulty. Readers should compare these provincial subtest results with their own school results.

EXAMINATION BLUEPRINT

Part B: Reading (Multiple Choice) has a value of 70 marks, one mark for each multiple-choice question. Each question is classified in two ways: according to the curricular content area being tested and according to the thinking (process) skill demanded by the question. The examination blueprint illustrates the distribution of questions in June 1990 according to these classifications. It is important to note that one multiple-choice question was deleted after a review of question statistics.

Question Type by Course Content	Question Type by Thinking Skills			Examination Emphasis (%)
	Literal Understanding	Inference and Application	Evaluation	
Meanings	5	4, 8, 9, 10, 16, 17, 18, 39, 40, 41, 43, 44, 51, 52, 57, 58, 61, 62*, 64, 66, 67, 70	1, 13, 25, 45	27 items (19%)
Relationships: Form and Content	59	6, 11, 12, 14, 15, 19, 21, 24, 46, 48, 63, 65	3, 68	15 items (11%)
Human Experience and Values	54	23, 42, 50, 53, 55, 56, 60	2, 7, 20, 22, 47, 49, 69	15 items (11%)
Life Skills	26, 31, 32, 38	27, 28, 29, 30, 34, 37	33, 35, 36	13 items (9%)
Examination Emphasis (%)	7 items (5%)	47 items (34%)	16 items (11%)	70 items (50%)

*Question 62 was deleted from the examination.

The following table shows question-by-question results and the keyed answers. There is a parallel table in the school and jurisdiction reports showing the percentage of students selecting each alternative. From this table, teachers can determine areas of strength and weakness in the achievement of their students relative to the province as a whole and, consequently, areas of strength and weakness in their programs.

QUES.	KEY	DIFF.*	QUES.	KEY	DIFF.	QUES.	KEY	DIFF.	QUES.	KEY	DIFF.	QUES.	KEY	DIFF.
1	D	56.4	15	C	77.8	29	B	51.7	43	A	55.8	57	A	48.7
2	A	91.0	16	A	81.9	30	D	76.2	44	D	48.2	58	A	62.0
3	B	57.3	17	B	71.2	31	D	67.4	45	D	46.3	59	D	45.2
4	C	70.0	18	A	55.1	32	C	64.4	46	A	55.3	60	C	53.7
5	B	72.2	19	B	73.7	33	C	47.0	47	A	59.5	61	C	60.9
6	D	74.1	20	D	79.9	34	B	59.0	48	D	46.9	62	Question deleted	
7	D	40.5	21	C	66.9	35	C	42.1	49	A	55.8	63	A	60.5
8	A	54.9	22	B	46.2	36	A	57.3	50	B	55.1	64	C	69.0
9	D	76.5	23	C	62.6	37	D	63.8	51	A	43.1	65	B	84.0
10	B	70.8	24	B	61.2	38	C	36.3	52	C	46.9	66	D	42.4
11	A	62.3	25	D	61.6	39	A	61.7	53	C	45.8	67	C	63.6
12	A	69.5	26	B	60.0	40	D	54.8	54	D	60.7	68	D	54.6
13	D	48.7	27	C	66.6	41	B	73.0	55	D	71.3	69	C	48.1
14	B	52.0	28	C	46.3	42	B	39.7	56	B	40.8	70	B	66.3

*Difficulty -- percentage of students answering the question correctly

EXAMINERS' COMMENTS

Students' performance on Part B: Reading (Multiple Choice) of the June 1990 English 33 Diploma Examination was generally satisfactory. During the marking session, a group of teachers reviewed the examination in detail. They noted that although Part B: Reading (Multiple Choice) was challenging, it was a fair examination and it set a reasonable standard of achievement for English 33 students.

Some teachers thought that questions 15, 17, and 20 based on the selection "Gwilan's Harp" set too high a standard of expectation for students. However, this was not borne out by the results. The reading selection was challenging, but it was also written beautifully and about a subject of interest to young people (love and commitment in relationships). English 33 students appear to respond better to moving, challenging literature than they do to more simplistic, less emotive writing.

The table below relates to four selected questions from the examination. For each question, three statistical references are noted: the percentage of all students choosing the correct answer, the percentage of students answering correctly who achieved the STANDARD OF EXCELLENCE (80% and better, or "A") on Parts A and B combined, and the percentage of students answering correctly who achieved the ACCEPTABLE STANDARD (50% to 64%, or "C") on Parts A and B combined. The comments following the table discuss some of the decisions that students made and some of the skills that they used to answer correctly.

Percentage of Students Correctly Answering Selected Questions
(Parts A and B Combined)

Student Group	Question Number			
	15	17	20	62
All Students	77.8	71.2	79.9	26.4
Students Achieving the Standard of Excellence (80% and better, or "A"	93.5	89.3	89.3	50.9
Students Achieving the Acceptable Standard (50% to 64%, or "C")	78.1	69.4	79.8	21.2

Questions

15. The statement "But all this beauty was practical, obedient, shaped to the service of sound" (lines 13-14) communicates the idea that the harp

    A. promised status for musicians
    B. provided employment for craftsmen
    *C. was intended to be played, not just admired
    D. was intended to be uplifting, not commonplace

Comments

Some teachers considered question 15 to be "on the challenging end of the spectrum." However, 77.8% of the students successfully answered the question. Most students understood the metaphor "the service of sound," which is a reasonable expectation for English 33 students. Students who achieved the standard of excellence did very well on this question: 93.5% answered correctly. Those who achieved the acceptable standard did quite well: 78.1% answered correctly. Of those students who failed the examination (achieved scores of 49% or less), 59.4% of them responded correctly to this question.

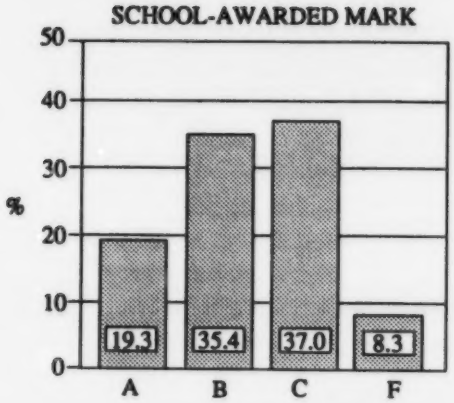
EXAMINERS' COMMENTS (continued)

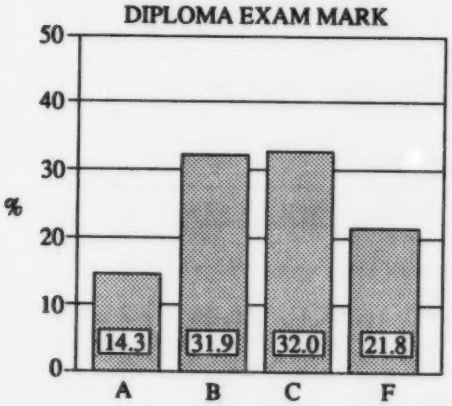
Questions	Comments
17. In the context of the entire sentence, the phrase "her hands were iron and her touch was silk" (line 23) suggests that Gwilan A. treated the harp with deep respect *B. showed great strength and artistry C. was determined to master her art D. was mature and responsible	Question 17 required students to interpret an abstract phrase, which is a reasonable expectation for English 33 students. Students were well prepared to answer this question: 71.2% chose the correct alternative. Some teachers thought that this question would be "too metaphoric" for English 33 students. However, 89.3% of the students achieving the standard of excellence answered correctly, and 69.4% of the students achieving the acceptable standard also answered correctly. Some teachers were concerned that students would be drawn strongly to alternative D, "was mature and responsible." However, none of the students achieving the standard of excellence chose this alternative, and only 4.4% of the students who failed the examination selected it.
20. The MOST PROBABLE reason that Torm "had never suggested a wedding, with singing and harp-playing" (lines 74-75) is that he A. lacked the money to finance a celebration B. feared the teasing of his family and friends C. suspected that Gwilan resented hearing others play *D. understood that Gwilan missed playing her special harp *Questions 15, 17, and 20 are part of a set of 12 questions based on an excerpt from "Gwilan's Harp", a story by Ursula K. Le Guin. Some teachers who reviewed the examination for appropriateness of standards expressed the belief that the story "set too high a standard" for English 33 students. Other teachers noted that the theme and language of the story would be of interest to students and would relate to their lives. The results indicate that students found the selection engaging and interesting. They found that the questions were not only manageable; many of them were quite easy.*	Question 20 required students to have an understanding of Gwilan and Torm, and of their relationship. English 33 students are expected to be able to infer the motive for a character's behavior. Some teachers believed that students would find this question very difficult. The students did very well, however; overall, 79.9% chose the correct response, indicating their understanding of characterization. Of the students achieving the standard of excellence, 89.3% answered correctly; of those achieving the acceptable standard, 79.8% answered correctly. Of the students who failed the examination, 63.4% answered correctly.
62. The phrase "kinder days" (line 89) refers to the time when A. boys could dream of being baseball heroes *B. baseball was played in Maple Leaf Stadium C. baseball players put the game before money D. baseball fans were generous and understanding *Question 62 is part of a set of eight questions based on the narrative poem "The Last Batter" by Raymond Souster. The teachers who reviewed the examination for appropriateness of standards concurred that the poem represented an appropriate and fair level of expectation. Some teachers noted that the poem would appeal to sports-minded students but might be tedious reading for others.*	Students found question 62 to be very difficult; it appears that they did not reread the poem to find the answer. The strongest draw was to A, "boys could dream of being baseball heroes." Only 26.4% of the students chose the keyed response. Of the students achieving the acceptable level, 21.2% answered correctly. Of the failing students, 17.7% answered correctly. Slightly more than half the students achieving the standard of excellence (50.9%) chose the keyed response. The decision was made to delete question 62 from the examination because it appeared to be too difficult for English 33 students.

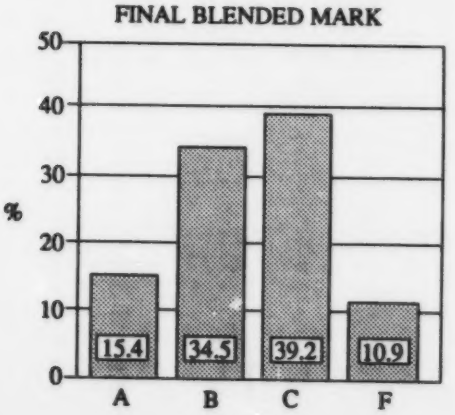
Students who achieved at or above the standard of excellence on the examination as a whole demonstrated that they consistently read the selections and all parts of each question carefully and thoughtfully. Results indicate that students who verify their ideas by reading the text carefully, by attending to details in the text, and by rereading for added meaning use such skills consistently.

For further information, contact Elana Scraba, Tom Dunn, or Gloria Malick at the Student Evaluation Branch, 427-2948.

Social Studies 30 Diploma Examination Results
June 1990







The summary information in this report is intended to provide teachers, school administrators, students, and the general public with an overview of results from the June 1990 administration of the Social Studies 30 Diploma Examination. The information is most helpful when used in conjunction with the detailed school and jurisdiction reports that have been mailed to schools and school jurisdiction offices. The first annual provincial report containing a detailed analysis of the combined January and June results is available this fall.

DESCRIPTION OF THE EXAM

The Social Studies 30 Diploma Examination consists of two parts: a multiple-choice section worth 70% and a written-response section worth 30%.

ACHIEVEMENT OF STANDARDS

The information reported is based on the final blended marks achieved by 10 823 students who wrote the June 1990 examination.

- 89.1% of these students achieved the acceptable standard (a final blended mark of 50% or higher).
- 15.4% of these students achieved the standard of excellence (a final blended mark of 80% or higher).

PROVINCIAL AVERAGES

- The average school-awarded mark was 66.3%.
- The average diploma exam mark was 62.3%.
- The average final blended mark, representing an equal weighting of the diploma and school marks, was 64.6%.

PART A: MULTIPLE CHOICE

RESULTS

Results are in average raw scores.

Total Part A: 45.2 out of 69

Subtest Results Part A:*

•Course Content
- -Political and Economic Systems: 22.3 out of 34
- -Co-operation and Conflict Among States: 22.9 out of 35

•Thinking Skills
- -Inquiry Skills A: 3.8 out of 6
  Students must demonstrate ability to identify and focus on the issue and to formulate research questions.
- -Inquiry Skills B: 11.6 out of 18
  Students must demonstrate ability to interpret, organize, and synthesize data.
- -Inquiry Skills C: 3.3 out of 6
  Students must demonstrate ability to resolve issues, apply decisions, and evaluate the decision, process, and action.
- -Recall and Comprehension: 20.8 out of 31
  Students must demonstrate ability to recall and recognize facts and to understand generalizations.
- -Value Concepts and Skills: 5.7 out of 8
  Students must recognize and analyse conflicts of competing values.

* Readers are cautioned NOT to compare subtest results because the subtests are not of equal difficulty. Readers should compare these provincial subtest results with their own school results.

PART A: MULTIPLE CHOICE EXAMINATION BLUEPRINT

Part A: Multiple Choice has a value of 70 marks, one mark for each multiple-choice question. Each question is classified in two ways: according to the curricular content area being tested and according to the thinking (process) skill demanded by the question. The examination blueprint illustrates the distribution of questions in June 1990 according to these classifications. It is important to note that one multiple-choice question was deleted after a review of question statistics.

Question Type by Course Content	Question Type by Thinking Skills					Examination Emphasis (%)
	Recall and Comp.	Inquiry Skills A	Inquiry Skills B	Inquiry Skills C	Valuing Skills	
Value Concepts competing values, value positions •Topic A •Topic B	5, 35, 44, 53				8, 17, 45, 54	8
Political and Economic Systems facts, concepts, generalizations	1, 2, 4, 10, 11, 13, 14, 18, 19, 23, 24, 25, 27, 31, 32*, 33	6, 7, 26	3, 9, 12, 15, 20, 21, 28, 29, 30	16, 22, 34		31
Co-operation and Conflict Among States facts, concepts, generalizations	40, 42, 43, 46, 47, 50, 52, 61, 62, 63, 65, 66, 67, 68, 69, 70	36, 37, 38	39, 41, 48, 49, 51, 55, 57, 58, 60	56, 59, 64		31
Examination Emphasis (%)	36	6	18	6	4	70

*Question 32 was deleted from the examination because it was deemed to set an unreasonable expectation for Social Studies 30 students.

The following table shows question-by-question results and the keyed answers. There is a parallel table in the school and jurisdiction reports that teachers can use to determine areas of strength and weakness in the achievement of their students relative to the province as a whole. The table in the school and jurisdiction reports shows the percentage of students selecting each alternative. Comparison of school results with provincial results may show areas of strength and weakness in instructional programs.

QUES.	KEY	DIFF.*	QUES.	KEY	DIFF.	QUES.	KEY	DIFF.	QUES.	KEY	DIFF.	QUES.	KEY	DIFF.
1	D	77.5	15	A	61.2	29	C	75.1	43	B	42.8	57	D	65.3
2	B	77.4	16	C	79.7	30	A	35.4	44	C	64.4	58	D	75.2
3	A	61.5	17	B	77.4	31	B	65.1	45	A	61.6	59	A	42.1
4	D	43.5	18	A	79.0	32	Question deleted		46	D	83.3	60	D	78.8
5	A	76.7	19	C	69.5	33	A	68.0	47	B	61.1	61	A	52.2
6	B	44.2	20	B	48.6	34	D	65.7	48	B	70.9	62	C	79.6
7	B	54.9	21	A	49.2	35	D	76.2	49	A	67.1	63	D	70.0
8	D	68.1	22	C	39.5	36	C	77.0	50	B	56.4	64	B	63.7
9	C	79.7	23	D	81.6	37	C	53.7	51	B	53.5	65	C	75.7
10	D	82.2	24	A	57.3	38	B	67.8	52	D	58.7	66	D	46.0
11	A	65.4	25	B	42.3	39	C	45.2	53	C	73.5	67	C	74.9
12	C	66.3	26	B	82.7	40	D	62.2	54	B	71.6	68	B	74.2
13	A	64.6	27	D	58.9	41	C	78.5	55	C	76.6	69	C	85.0
14	D	80.7	28	D	76.8	42	C	76.6	56	B	44.2	70	A	65.0

*Difficulty -- percentage of students answering the question correctly

EXAMINERS' COMMENTS

The multiple-choice section of the examination requires students to move beyond the simple recall of information to applying their knowledge and thinking skills. Students must demonstrate that they understand social studies concepts; comprehend historical, political, and economic relationships; and can interpret and evaluate social studies information and ideas.

On the June 1990 examination, most students demonstrated an acceptable level of achievement, which is consistent with previous administrations. Nearly 80% of the students achieved the acceptable standard (35 marks or better out of 70), while 24.1% achieved the standard of excellence (56 marks or better out of 70). The average score on the multiple-choice section of the examination was 45.5 out of 69 (65.9%). What is encouraging is the relatively high proportion of students achieving excellence on the multiple-choice part of the examination.

The table below relates to five selected questions from the examination. For each question, three statistical references are noted: the percentage of all students choosing the correct answer, the percentage of students answering correctly who achieved the STANDARD OF EXCELLENCE (80% and better, or "A") on Parts A and B combined, and the percentage of students answering correctly who achieved the ACCEPTABLE STANDARD (50% to 64%, or "C") on Parts A and B combined. The comments on pages 4 and 5 discuss some of the decisions that students made and some of the skills they used to answer correctly.

Percentage of Students Correctly Answering Selected Questions
(Parts A and B Combined)

Student Group	Question Number				
	20	21	22	58	59
All Students	48.6	49.2	39.5	75.2	42.1
Students Achieving the Standard of Excellence (80% and better , or "A")	83.9	90.3	82.8	95.9	71.1
Students Achieving the Acceptable Standard (50% to 64%, or "C")	38.4	37.0	24.2	71.3	34.6

Questions

— from *The Economist*

20. The map indicates an economic trend based on the reassertion of the principles of

A. Karl Marx
* B. Adam Smith
C. John Stuart Mill
D. John Maynard Keynes

21. The term that best describes the economic process shown on the map is

* A. privatization
B. centralization
C. nationalization
D. collectivization

22. To a supporter of the economic principles shown on the map, which Canadian government action would be most acceptable?

A. The recreation of a National Energy Program
B. The payment of cash supplements to prairie farmers
* C. The establishment of franchised postal services
D. The foundation of a Foreign Investment Review Agency

Comments

Questions 20, 21, and 22 proved difficult for many students. Each question required students to apply their knowledge and understanding of economic theory to an unfamiliar situation, and to use their interpretive, analytical, and problem-solving skills to deduce the correct answers. All three questions tested students' knowledge of fundamental principles of capitalism: Adam Smith's principles; the concept of privitization versus public ownership; and recent Canadian decisions that are representative of these economic principles.

The results for question 20 suggest that if students had a clear understanding of the principles of Adam Smith, relatively few were able to apply that understanding to an unfamiliar situation. It is noteworthy that students who achieved 80% or better on Parts A and B combined had no difficulty with this question: 84% answered correctly. Only 38.4% of the students achieving total examination scores between 50% and 64% answered correctly.

The results for question 21 are similar to those of question 20. Either students did not know the economic terms, or they knew the terms but had difficulty applying their knowledge. However, 90% of the students achieving the standard of excellence answered correctly; 37% of the students achieving the acceptable standard answered correctly.

A similar pattern emerged in the results for question 22. Those students who achieved the standard of excellence on the whole examination had no difficulty with this question: 83% answered correctly. Of those students who received total examination scores between 50% and 64%, 43.1% were drawn to alternative A, 24% to alternative C, and 24% to alternative D. These results suggest that these students did not have the knowledge demanded by the question and so guessed the answer. Some students in this group may not have known the word "franchised" in alternative C.

EXAMINERS' COMMENTS (continued)

Questions

— from *Philadelphia Inquirer*

58. This 1987 cartoon suggests that both the Americans and the Soviets were prepared to

A. seek military alliances with Third World nations
B. risk direct military confrontation with each other
C. condone each other's right to pursue policies of containment
* D. use force to maintain their respective spheres of influence

59. The bias revealed by the cartoonist would have been strongly condemned at the time by a supporter of the

* A. Contra effort in Nicaragua
B. Sandinista government in Nicaragua
C. anti-imperialist forces in Afghanistan
D. anti-imperialist forces in Central America

Comments

Questions 58 and 59 required students to interpret, analyse, and synthesize the information contained in a political cartoon from 1987. Question 58 required students to consider the similarities between Soviet intervention in Afghanistan and American intervention in Central America; students were also required to identify a reason for the superpower activities. Most students did well: 75% answered correctly. Of those students achieving at or above the standard of excellence, 96% chose the keyed response. Of those students achieving at or somewhat above the acceptable standard, 71.3% answered correctly.

Interestingly, question 59 proved considerably more difficult: only 42% of the students selected the keyed response (71% of those achieved the standard of excellence and only 34.6% of those achieved at or somewhat above the acceptable standard).

Perhaps students were confused about the terms "Contra," "Sandinista," and "anti-imperialist." Many of the students in the 50% to 64% range and those in the failing group chose alternative C (28.5% and 39.5% respectively), perhaps simply because of the reference to Afghanistan, to which the situation in Central America is being compared.

The results for these two questions suggest that if students understand the concept of sphere of influence, many are less clear about contemporary applications of this concept.

PART B: WRITTEN RESPONSE

The results for the written-response section of the Social Studies 30 Diploma Examination follow on page 6. The results are tabulated according to the percentage of students achieving at each level (1 to 5) in each of the scoring categories. Each scoring category assesses somewhat different skills; consequently, individual student's scores are likely to vary from one category to another. Those students who achieve at or above the standard of excellence (80%) on the written-response section will have scores of (4) PROFICIENT or (5) EXCEPTIONAL on all scoring categories. Students just meeting the acceptable standard (50%) on the written-response section will have scores of (3) SATISFACTORY on some scoring categories but will be producing (2) LIMITED work on other categories. Students who produce (3) SATISFACTORY work on ALL scoring categories have just exceeded the pass mark of 50%.

Readers will find the results most meaningful in the context of the assignment and the scoring descriptors. The most useful starting place for reviewing these results is at the (3) SATISFACTORY level. The scoring guides that describe proficiency levels are in the *Grade 12 Diploma Examinations Program Bulletin: Social Studies 30: 1990-91 School Year (September 1990).*

PART B: WRITTEN-RESPONSE BLUEPRINT and PERCENTAGE DISTRIBUTION OF RESULTS

The written-response section contributes 30% of the examination mark. Students are required to write one complete and unified essay in which they defend their position on a given issue. In their writing, they are expected to demonstrate their understanding of the steps of the inquiry process and of course content, and their essay writing skills.

Part B: Written Response has a total value of 30 marks: 10 marks each for Defence of Position and Presentation of Examples or Case Studies, and five marks each for Discussion of Values and Quality of Language and Expression.

SCORING CATEGORY	PROPORTION OF TOTAL MARK (%)	PERCENTAGE DISTRIBUTION OF SCORES					
		(5) EXCEPTIONAL	(4) PROFICIENT	(3) SATISFACTORY	(2) LIMITED	(1) POOR	(0) INS
1. Defence of Position	10	2.0	14.5	44.9	34.1	4.2	0.2
2. Discussion of Values	5	1.6	10.6	33.4	35.9	17.9	0.6
3. Presentation of Examples or Case Studies	10	2.2	12.9	38.4	36.9	9.1	0.5
4. Quality of Language and Expression	5	2.3	18.5	60.4	17.5	1.1	0.2

Note: The shaded portion represents the percentage of students who achieved or exceeded a SATISFACTORY level of performance.

EXAMINERS' COMMENTS

Student achievement on the written-response part of the June 1990 examination was as follows: 62.7% of the students achieved the acceptable standard or better, while 7.3% of the students achieved the standard of excellence or better.

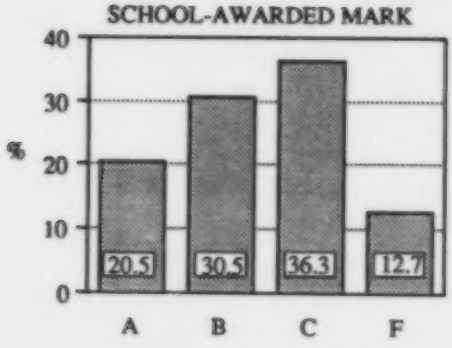
A closer statistical review of the percentage distribution of scores on the written component reveals that while 82.2% of the students demonstrated a satisfactory or better command of written expression, many had difficulty with some of the specifics of the task. The handling of Discussion of Values and Presentation of Examples or Case Studies was often inadequate. The quality of some students' responses was diminished by the students' inclusion of unnecessary or marginally relevant information. As in previous administrations, a significant number of students substituted memorized information for thought, or they made simple assertions rather than developing supporting ideas in their essays.

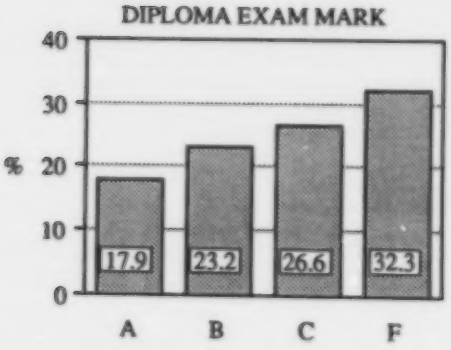
For Topic A, students took a variety of approaches because of a dual interpretation of the question. Most students took the following approach: Should governments be prepared to make fundamental *changes* to their nation's economy? This question, which focused on change, invited studies of the New Deal, free trade, the EC, *perestroika*, and other significant economic revisions. However, some students interpreted the question as: Should *governments* be prepared to make changes to their nation's economy? This latter group of students discussed the extent to which government should be involved in the marketplace, and they used theoretical case studies such as Marxist, Keynesian, or *laissez-faire* economics. While deemed an unconventional approach, this interpretation was accepted as valid and marked according to the merits of the individual papers. Unfortunately, a number of students who chose to write the Topic A assignment skirted or avoided the issue, which dealt with the desirability of change to economic systems. Some students chose to reproduce the usual comparison of the American, Soviet, and Swedish systems; they argued not about change per se but about the superiority of one system over another. The result was a low score. To do well, students must address the issue presented and apply their skills of argumentation and persuasion to the issue.

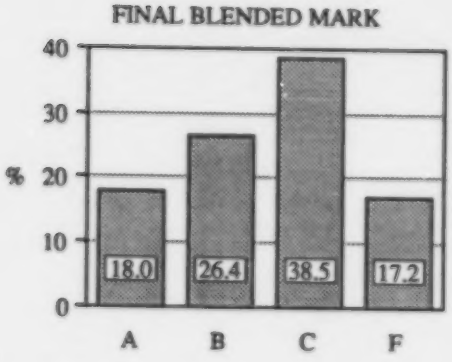
Topic B essays were generally satisfactory although, in many papers, the arguments and case studies tended to lack depth and development. Most students associated "weapons of mass destruction" with nuclear arms; however, some students discussed the development of the machine gun, chemical weapons, and even the firebombing of Dresden. Many students argued a narrow point of view and concluded that the development of destructive weapons was clearly justified or clearly not justified. The students who received high marks were those who demonstrated complexity of thought and consideration of varying perspectives.

For further information, contact Elana Scraba or Barry Jonas at the Student Evaluation Branch, 427-2948.

Mathematics 30 Diploma Examination Results
June 1990







The summary information in this report is intended to provide teachers, school administrators, students, and the general public with an overview of results from the June 1990 administration of the Mathematics 30 Diploma Examination. The information is most helpful when used in conjunction with the detailed school and jurisdiction reports that have been mailed to schools and school jurisdiction offices. The first annual provincial report containing a detailed analysis of the combined January and June results is available this fall.

DESCRIPTION OF THE EXAM

The Mathematics 30 Diploma Examination consists of three parts: a multiple-choice section of 40 questions worth 61.5%, a numerical-response section of 12 questions worth 18.5%, and a written-response section of three questions worth 20%.

ACHIEVEMENT OF STANDARDS

The information reported is based on the final blended marks achieved by 10 098 students who wrote the June 1990 examination.

- 82.8% of these students achieved the acceptable standard (a final blended mark of 50% or higher).
- 18.0% of these students achieved the standard of excellence (a final blended mark of 80% or higher).

PROVINCIAL AVERAGES

- The average school-awarded mark was 65.5%.
- The average diploma exam mark was 60.0%.
- The average final blended mark, representing an equal weighting of the diploma and school marks, was 63.1%.

SUBTEST RESULTS

When analysing any detailed examination results, please bear in mind that subtest results **cannot** be directly compared.

Machine scored: 32.0 out of 52

Written response: 6.9 out of 13

- Course Content
  - Trigonometry: 11.0 out of 16
  - Quadratic Relations: 7.4 out of 14
  - Sequences, Series, Limits: 8.0 out of 13
  - Statistics: 5.1 out of 8
  - Logarithms: 3.4 out of 7
  - Polynomial Functions: 4.1 out of 7

- Cognitive Levels
  - Knowledge: 4.3 out of 6
  - Comprehension: 13.8 out of 20
  - Application: 17.5 out of 30
  - Higher Mental Activities: 3.4 out of 9

EXAMINATION BLUEPRINT

Each question on the examination is classified in two ways: according to the curricular content area being tested and according to the cognitive level demanded by the question. The examination blueprint illustrates the distribution of questions in June 1990 according to these classifications. Numbers with square brackets [ ] indicate written-response questions, those with round brackets ( ) indicate numerical-response questions, and those without brackets indicate multiple-choice questions.

Reporting Category	Questions by Cognitive Level				Examination Emphasis (%)
	Knowledge	Comprehension	Application	Higher Mental Activities	
Trigonometry	5	2, 3, 4, 7, 9 (1)	1, 8 [1]	6 (2)	24.6
Quadratic Relations	13	10, 11, 17 (4)	15, 16 (3) [2]	12, 14	21.5
Sequences, Series, Limits	21	18, 24, 26, 27 (7)	19, 22, 23, 25 (5)	20 (6)	20.0
Statistics	29	31 (9)	28, 32, 33 (8)	30	12.3
Logarithms	34	35	[3]	(10)	10.8
Polynomial Functions	37	39 (12)	36, 40 (11)	38	10.8
Examination Emphasis (%)	9.2	30.8	46.2	13.8	100

RESULTS and EXAMINERS' COMMENTS

The examination has a balance of question types and difficulties and is designed so that a student capable of achieving the acceptable standard would obtain a mark of 50% or better on the examination. Students achieving the standard of excellence would obtain a mark of 80% or better on the examination. Despite the parallel structure of this examination to previous examinations, far more students than expected (32.3%) failed to achieve the acceptable level. Future examinations will require students to demonstrate clarity in their thinking as well as a higher level of thinking on a broader range of goals. Students will need to achieve these learner expectations if they are to be successful on the examination. For information concerning the 1990-91 diploma examinations, please consult the 1990-91 Mathematics and Sciences bulletin.

MULTIPLE CHOICE

QUESTION	KEY	DIFFICULTY*	QUESTION	KEY	DIFFICULTY	QUESTION	KEY	DIFFICULTY
1	B	92.1	14	A	33.4	27	C	65.4
2	A	85.1	15	B	73.5	28	C	83.6
3	C	53.2	16	D	48.2	29	A	72.9
4	D	69.8	17	A	70.4	30	D	43.5
5	A	62.8	18	B	65.7	31	B	71.8
6	C	46.2	19	C	69.7	32	B	59.4
7	D	77.0	20	D	45.7	33	C	64.1
8	B	51.6	21	C	71.5	34	A	78.5
9	D	82.1	22	B	55.6	35	C	70.3
10	A	62.7	23	A	75.5	36	D	66.1
11	C	65.0	24	C	68.0	37	B	70.3
12	A	60.8	25	D	53.6	38	B	41.6
13	D	69.0	26	B	87.5	39	A	73.7
						40	D	60.7

*Difficulty – percentage of students answering the question correctly

MULTIPLE CHOICE (continued)

All students were expected to answer correctly most knowledge and comprehension questions – those questions that required students to apply one concept. Close to 25% of the students did not meet this expectation. Students achieving the standard of excellence were expected to demonstrate a thorough knowledge of mathematics and to apply this knowledge to new situations. Questions 6, 12, 14, 20, 30, and 38 required students to generalize their knowledge of a mathematical concept. Detailed comments on questions 30 and 34, which illustrate the varying question types and difficulty levels included in the examination, follow.

30. In a given set of data with a mean of $4x + 6$ and a standard deviation of x, a mark of 30 produces a z-score of $x - 2$. The standard deviation correct to the nearest tenth is

A. 22.0
B. 6.0
C. 5.1
*D. 4.0

Question 30 required students to solve for the standard deviation, x. Students had to substitute three functions of x into the z-score definition, solve the resulting quadratic equation, and select the one meaningful root, $x = 4$. Had the question involved the substitution of three numbers instead of three functions, many more students would have answered correctly. Nearly three-quarters of the students whose examination marks were over 80% obtained the correct answer. Most of the students whose examination marks were below 50% appeared to confuse standard deviation and mean, or they made arithmetic errors: fewer than one-quarter of them obtained the correct answer.

34. If $\log_a (x + b) = c$, then x in terms of a, b, and c is

*A. $a^c - b$
B. $c^a - b$
C. $b^c - a$
D. $c^b - a$

The results for question 34 are in marked contrast to the results for written-response question 3. Three-quarters of the students eliminated the single logarithm in this question and then solved for x, yet very few students could remove the three logarithms used in written-response question 3. Over half the students whose examination marks were below 50% answered this question correctly. A small percentage of students appeared to confuse the base with the exponent when moving from logarithmic to exponential form.

NUMERICAL RESPONSE

Students should be reminded to check their answer sheet against their work to ensure that they have correctly filled in the answer sheet.

Based on initial field-test results, the numerical-response average score of 48.6% was approximately the score students were expected to achieve.

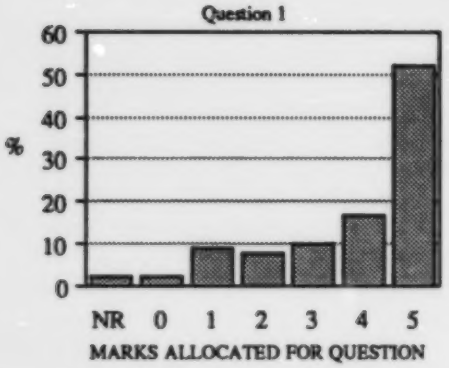
QUESTION	KEY	DIFFICULTY	QUESTION	KEY	DIFFICULTY	QUESTION	KEY	DIFFICULTY
1	010.3	84.6	5	002.5	79.3	9	002.8	72.3
2	111.3	18.5	6	000.8	07.0	10	012.8	45.6
3	002.0	41.4	7	000.3	53.4	11	005.3	41.6
4	003.9	49.8	8	043.8	37.7	12	012.0	51.7

2. In ΔABC, $\angle B = 53°$, $b = 6$, and $c = 7$. If $\angle C$ is obtuse, then the measure of $\angle C$ correct to the nearest tenth of a degree is _____.

Question 2 required students to use the Sine Law to find the value of sin $\angle$C, to recognize that $\angle$C could be two possible angle measures, and then to choose the obtuse angle. Only one-fifth of the students obtained the correct answer. Over half the students failed to recognize that there were two possible angle measures for $\angle$C and identified only the acute angle shown on their calculators.

WRITTEN RESPONSE

Questions in the written-response section dealt with three of the six content strands for Mathematics 30. Students performing at the acceptable standard were expected to answer question 1 well, to obtain at least half marks on question 2, and to be challenged by question 3. Students performing at the standard of excellence were expected to answer all questions almost perfectly. Based on initial field-test results, the written-response average score of 53.3% was approximately 5% lower than was expected.

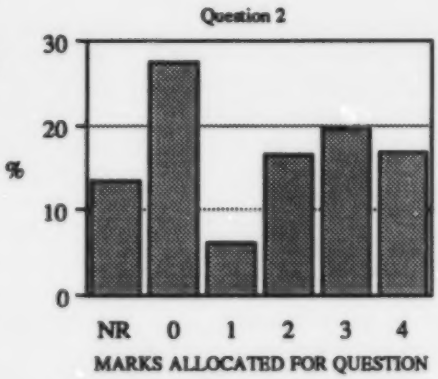


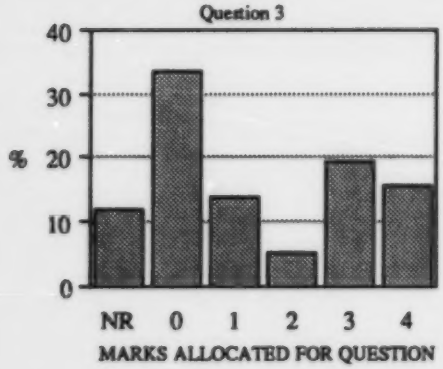
Question 1 was answered extremely well by most students. Students were required to draw a diagram, to compute the perimeter of the triangle, and then to identify the largest angle in the triangle. Markers noticed that many students did not substantiate their answers. Students should be reminded to show all their calculations and explanations for the written-response section. On this 5-mark question, the average mark was 3.81 for 76.2% of the available mark.

Question 2 required students to identify the distance between the origin and a vertex, to identify the distance between the origin and a focus, to calculate one-half the length of the conjugate axis, and then to identify the equations for the asymptotes of the hyperbola. Only half the students performing at the standard of excellence were able to find the equations of the asymptotes. Students did not earn full marks if they did not provide complete equations; that is, if their equations were not in one of the following forms:

$$y = \pm mx; \quad x = \pm\frac{1}{m}y; \quad \text{or} \quad mx \pm y = 0.$$

On this 4-mark question, the average mark was 1.65 for 41.3% of the available mark.



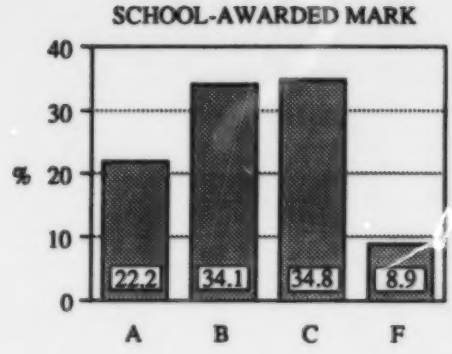


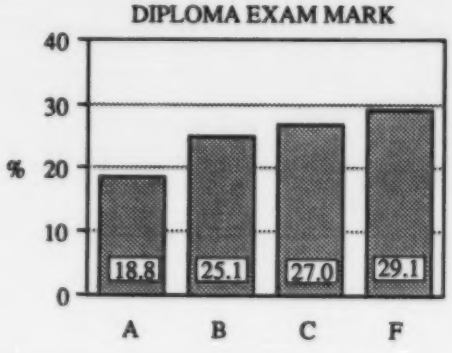
Question 3 required students to solve a logarithmic equation and to recognize that they must check the solutions of the quadratic equation. Approximately one-third of the students incorrectly assumed that "a + b = c" follows from "log(a) + log(b) = log(c)." Close to one-fifth of the students solved the resulting quadratic equation, but they failed to recognize that the logarithm of a negative number is undefined and that only one solution satisfied the original equation. On this 4-mark question, the average mark was 1.46 for 36.5% of the available mark.

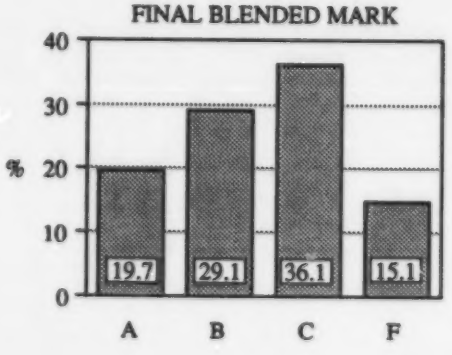
Note: Markers are increasingly concerned about the incorrect use of "=" symbols. Given this concern, they will be checking for the accuracy of students' mathematical statements in future examinations. Students must continue to be informed of the importance of explaining their work fully in the written-response section of the examination. In several instances, students could have received additional marks if markers had been able to determine how students had obtained an answer.

For further information, contact Phill Campbell or Florence Glanfield at the Student Evaluation Branch, 427-2948.

Biology 30 Diploma Examination Results
June 1990







The summary information in this report is intended to provide teachers, school administrators, students, and the general public with an overview of results from the June 1990 administration of the Biology 30 Diploma Examination. The information is most helpful when used in conjunction with the detailed school and jurisdiction reports that have been mailed to schools and school jurisdiction offices. The first annual provincial report containing a detailed analysis of the combined January and June results is available this fall.

DESCRIPTION OF THE EXAM

The Biology 30 Diploma Examination consists of two parts: a multiple-choice section of 70 questions worth 70% and a written-response section of seven questions worth 30%.

ACHIEVEMENT OF STANDARDS

The information reported is based on the final blended marks achieved by 10 591 students who wrote the June 1990 examination.

- 84.9% of these students achieved the acceptable standard (a final blended mark of 50% or higher).
- 19.7% of these students achieved the standard of excellence (a final blended mark of 80% or higher).

PROVINCIAL AVERAGES

- The average school-awarded mark was 67.1%.
- The average diploma exam mark was 61.1%.
- The average final blended mark, representing an equal weighting of the diploma and school marks, was 64.4%.

SUBTEST RESULTS

When analysing any detailed examination results, please bear in mind that subtest results cannot be directly compared.

Machine scored: 46.7 out of 70

Written response: 14.4 out of 30

- Course Content
  - Cellular Processes: 5.7 out of 9
  - Homeostatic Mechanisms: 2.6 out of 4
  - Nutrition and Digestion: 8.1 out of 16
  - Body Fluids: 9.4 out of 15
  - Breathing, Gas Exchange, and Transport: 4.6 out of 7
  - Energy Release: 3.7 out of 5
  - The Kidney: 5.6 out of 10
  - Regulation of the Internal Environment: 12.3 out of 20
  - Voluntary Movement and Body Support: 2.5 out of 4
  - Human Reproduction: 6.4 out of 10

- Process Skills: 22.2 out of 39
  - Multiple-choice questions 2, 3, 8, 9, 11, 13, 15, 24, 26, 30, 31, 36, 38, 40, 42, 44, 54, 63, 68, and 70, and written-response questions 1, 3, 5, and 7.

- Cognitive Levels
  - Knowledge: 16.7 out of 25
  - Comprehension and Application: 33 out of 55
  - Higher Mental Activities: 11.4 out of 20

EXAMINATION BLUEPRINT

Each question on the examination is classified in two ways: according to the curricular content area being tested and according to the cognitive level demanded by the question. The examination blueprint illustrates the distribution of questions in June 1990 according to these classifications. Numbers with square brackets [ ] indicate written-response questions, and those without brackets indicate multiple-choice questions.

Reporting Category	Questions by Cognitive Level			Examination Emphasis (%)
	Knowledge	Comprehension and Application	Higher Mental Activities	
Cellular Processes	1, 4	2, 3, 5, 6, 7	8, 9	9
Homeostatic Mechanisms	10	11, 12	13	4
Nutrition and Digestion	14, 16, 17, 18	15, 19 [1]	[3]	16
Body Fluids	20, 21, 22, 23, 28	24, 25, 27, 29, 30, 31 [4]	26	15
Breathing, Gas Exchange, and Transport	32	33, 34, 35, 37, 38	36	7
Energy Release	39	41, 42, 43	40	5
The Kidney	45, 46	44, 47	[5]	10
Regulation of the Internal Environment	48, 51, 53, 55, 58	49, 50, 52, 54, 56, 57, 59 [2], [6]		20
Voluntary Movement and Body Support	61	60, 62	63	4
Human Reproduction	64, 65, 67	66, 68, 69 [7]	70	10
Examination Emphasis (%)	25	55	20	100

RESULTS and EXAMINERS' COMMENTS

The examination has a balance of question types and difficulties and is designed so that a student capable of achieving the acceptable standard would obtain a mark of 50% or better on the examination. Students achieving the standard of excellence would obtain a mark of 80% or better on the examination. Despite the parallel structure of this examination to previous examinations, more students than expected (29.1%) failed to achieve the acceptable level. Future examinations will require students to demonstrate clarity in their thinking as well as a higher level of thinking on a broader range of goals. Students will need to achieve these learner expectations if they are to be successful on the examination. For information concerning the 1990-91 diploma examinations, please consult the 1990-91 Mathematics and Sciences bulletin.

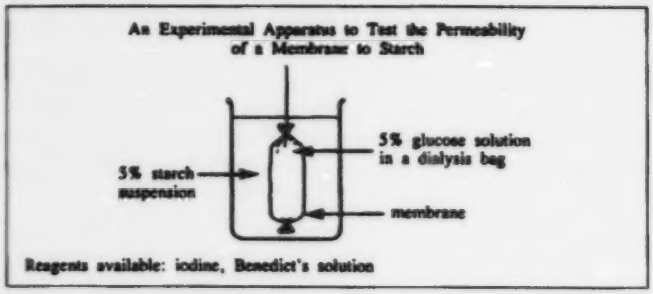
MULTIPLE CHOICE

QUES.	KEY	DIFF.*	QUES.	KEY	DIFF.	QUES.	KEY	DIFF.	QUES.	KEY	DIFF.	QUES.	KEY	DIFF.
1	C	76.8	15	B	82.3	29	A	60.7	43	B	58.6	57	A	64.5
2	A	59.6	16	A	61.8	30	D	49.5	44	C	72.8	58	D	69.7
3	B	73.7	17	A	61.5	31	B	52.7	45	B	73.4	59	A	79.3
4	A	73.6	18	D	62.0	32	C	65.3	46	C	39.6	60	D	69.3
5	B	59.9	19	D	77.3	33	D	58.1	47	C	47.2	61	A	72.8
6	B	40.9	20	C	80.9	34	B	70.1	48	B	73.8	62	D	62.0
7	D	61.6	21	B	77.7	35	C	68.5	49	A	77.1	63	B	50.3
8	A	65.7	22	C	66.6	36	B	72.9	50	B	78.6	64	D	48.1
9	D	57.5	23	A	60.9	37	C	73.4	51	A	44.9	65	B	54.5
10	D	71.1	24	A	68.1	38	A	50.4	52	D	63.3	66	B	77.0
11	B	60.7	25	B	68.9	39	D	74.3	53	B	76.2	67	C	78.3
12	D	60.3	26	D	72.9	40	A	85.2	54	B	60.4	68	A	76.1
13	C	71.0	27	B	68.8	41	C	84.1	55	D	72.1	69	C	64.1
14	D	66.3	28	D	65.3	42	C	71.0	56	C	67.0	70	D	84.2

*Difficulty – percentage of students answering the question correctly

Students who achieved the acceptable standard demonstrated an understanding of key biological terms (questions 4, 10, and 44) and of the basic functions of human anatomical structures (questions 1 and 20). As well, this group of students matched physiological functions with diagrammatic representations of human structures (questions 19, 34, and 66) and interpreted simple graphs and data tables that correspond directly to the basic core concepts (questions 13, 15, and 68).

Students who achieved the standard of excellence demonstrated the ability to follow multistep processes and to use specialized vocabulary (questions 2, 5, 38, and 47). They applied core concepts to new situations (question 33) and interpreted complex sets of data (questions 31, 38, and 63). Detailed comments on questions 3 and 31, which required students to use process skills, follow.


An Experimental Apparatus to Test the Permeability of a Membrane to Starch
5% glucose solution in a dialysis bag
5% starch suspension
membrane
Reagents available: iodine, Benedict's solution

3. To determine if the membrane is permeable to starch, a sample should be taken from the

A. beaker and tested with iodine
*B. dialysis bag and tested with iodine
C. beaker and tested with Benedict's solution
D. dialysis bag and tested with Benedict's solution

Question 3 required students to select an appropriate procedure to investigate membrane permeability. Students had to recall their knowledge of tests for identifying glucose and starch. Approximately 74% of the students selected the correct solution and test reagent to be used. All students should have been able to eliminate alternatives A and C since testing the solution in the beaker would not have established that starch had passed through the membrane; 11% and 6% of the students chose alternatives A and C respectively. Alternative D, which 10% of the students selected, presented the correct solution for testing but identified an incorrect reagent.

Data Obtained from Four Patients Who Have Circulatory Problems

Patient	% Saturation of Hemoglobin with O_2 (arterial blood)	Cardiac Output (L/min)	Hemoglobin Content of Blood (g/L)	Heart Rate at Rest (beats/min)
I	80	5.5	186	71
II	52	5.5	148	80
III	88	3.0	152	112
IV	91	6.5	119	105
NORMAL	90	5.0	160	72

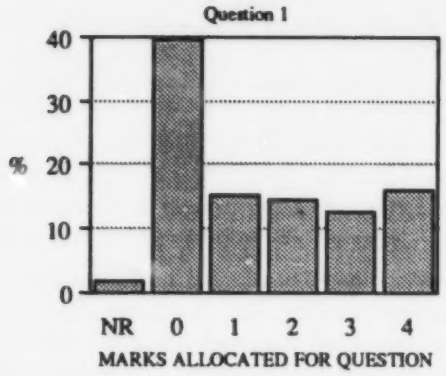
31. Which patient has been exposed to a chemical that is competing for the bonding sites of hemoglobin?

A. I
*B. II
C. III
D. IV

Question 31 required students to analyse a complex data chart and select from it information that corresponded to the health problem described. A clear understanding of competitive inhibition as it applies to the role of hemoglobin was needed. Determining the significant data and thereby selecting the correct patient presented a challenge to all students. Approximately 53% of the students selected the correct answer. A large portion of the students (33%) confused the hemoglobin content of blood with the capacity of hemoglobin to bind with O_2. Of these students, approximately 7% selected patient I, who had the highest hemoglobin content; and 26% selected patient IV, who had the lowest hemoglobin content. Another 15% of the students associated the problem with low cardiac output and therefore selected patient III.

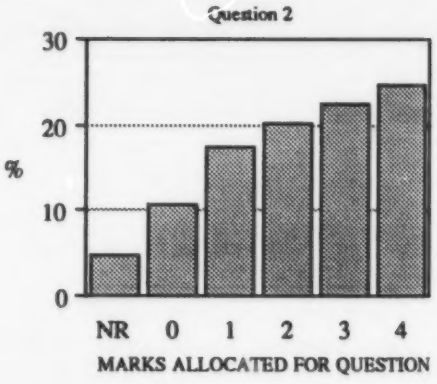
WRITTEN RESPONSE

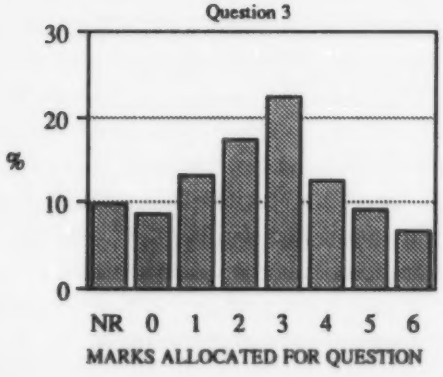
The seven questions in the written-response section were designed to measure achievement on seven of the 10 content strands for Biology 30. All of the questions went beyond measuring simple recall of information. Questions 1, 3, 5, and 7 emphasized process skills and question 3 included two marks for written communication skills. Students performing at the acceptable standard were expected to answer correctly portions of each question. Students performing at the standard of excellence were expected to obtain full marks on questions 1, 4, and 7 and to obtain two-thirds or more of the marks for each of the other four questions. The written-response average score of 47.7% was approximately 7% lower than was expected, based on initial field-test results.



Question 1: A large percentage of the students who obtained one mark or less misread the summary of the investigation as well as part (a) of the question. These students did not understand the meaning of "product of digestion." Therefore, they focused on the regulation of pH by lipase and bile. The most common answer to part (a) was lipase. Having missed the purpose of the investigation, many students concluded from the data that bile and lipase functioned as acids or bases rather than as an emulsifying agent and an enzyme respectively. Some students' responses also revealed their lack of understanding of the difference among observations, conclusions, and explanations. On this 4-mark question, the average mark was 1.47 for 37% of the available mark.

Question 2: Many students correctly identified parts L and M, and most students presented reasonable predictions. Providing explanations for their predictions proved to be more difficult. A small number of students presented sophisticated explanations that extended beyond the content outlined in the *Program of Studies*. The key accommodated a wide variety of answers. On this 4-mark question, the average mark was 2.2 for 56% of the available mark.

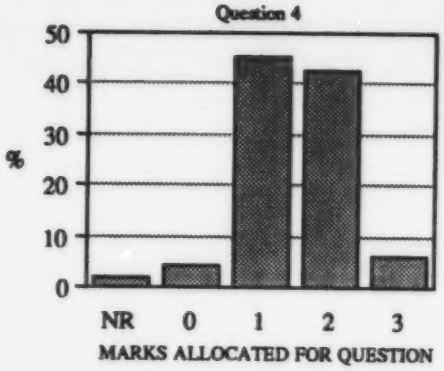


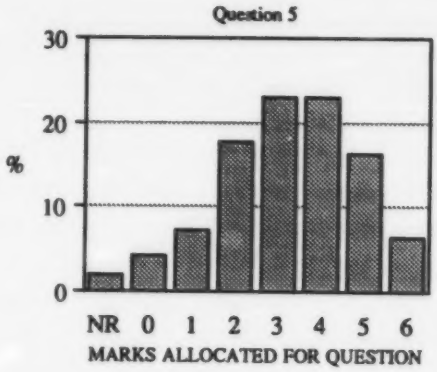


Question 3 generated a wide range of student responses as well as a significant number (10%) of No Responses. Approximately 16% of the students, those who obtained five or six marks, met the challenge of this high level question by composing logical and well-written critiques. These students made effective use of widely accepted information to evaluate objectively the new proposal that grew out of Marshall's preliminary research. On the other hand, some responses revealed the need to address student attitudes toward scientific investigation. Too many students made personal references to Marshall rather than evaluating the quality of his research; they used derogatory terms such as "idiot" and "stupid" rather than scientific vocabulary that identified components of his experimental design. On this 6-mark question, the average mark was 2.52 for 42% of the available mark.

WRITTEN RESPONSE (continued)

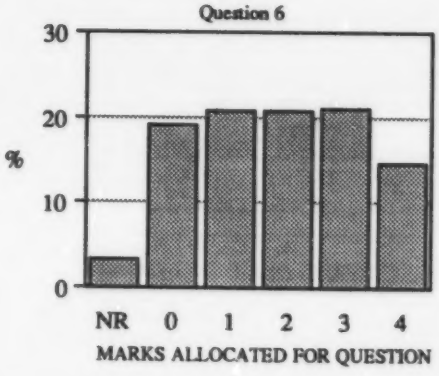
Question 4: Most students described correctly three to six of the nine comparisons and therefore received either 1 or 2 marks. There was little evidence of students following the suggestion to sketch the circulatory system as an aid to forming the required comparisons. The results indicate that the effect of blood from different sources mixing together, thereby altering the level of components by dilution, was a difficult concept. On this 3-mark question, the average mark was 1.49 for 50% of the available mark.

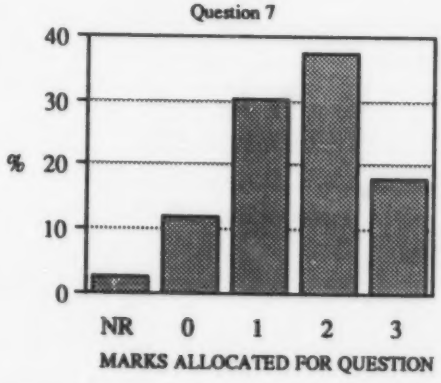




Question 5: Most students demonstrated a good understanding of graph construction. The two most common problems were omitting to title the graph and to label units on the vertical axis. Many students provided good explanations for the changes in glucose concentration, but they often located the process in the wrong portion of the nephron. Few students identified water reabsorption as the reason for the increase in urea concentration. Specialized terms such as reabsorption and secretion were used carelessly; the words urea and urine were used synonymously. Although 71% of the students selected the correct definition of homeostasis in question 10 of the multiple-choice section, very few students could adequately apply this concept to glucose or urea concentrations of the blood. On this 6-mark question, the average mark was 3.24 for 54% of the available mark.

Question 6: Had students read the information in the preamble carefully, they would not have confused the effects of amphetamines with those of anabolic steroids. Students would then have focused more directly on the regulation of internal organs by the autonomic nervous system rather than on the alteration of metabolic activities or mass of skeletal muscles. Many students who answered part (a) incorrectly still obtained marks for part (b) or (c). The key accommodated a wide range of responses to part (b). Behavioral responses, such as drinking large amounts of water, were not accepted for part (c). On this 4-mark question, the average mark was 1.85 for 46% of the available mark.

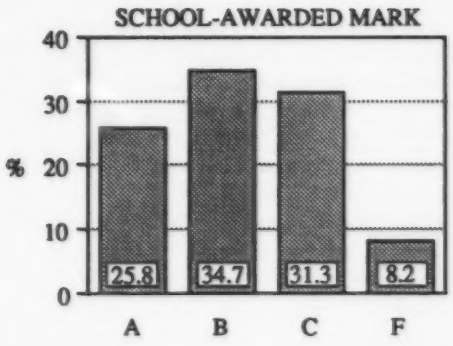


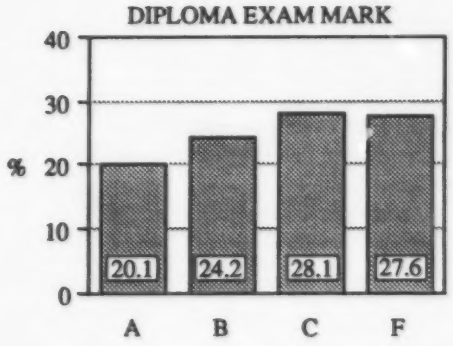


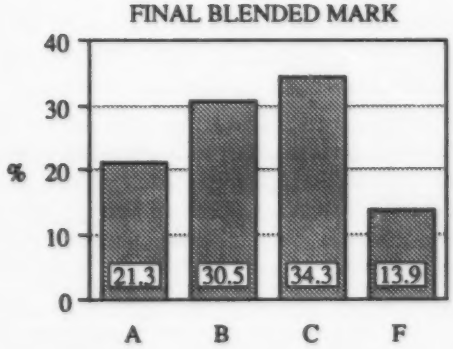
Question 7: Most students presented correct predictions for parts (a) and (b). However, the explanations given in support of the predictions were often weak. Responses to part (c) indicated that many students think the accessory glands (prostate, seminal vesicles) secrete sex hormones. Others think that testosterone, which is produced by the testes, is transported by the vasa deferentia. On this 3-mark question, the average mark was 1.58 for 53% of the available mark.

For further information, contact Phill Campbell or Lowell Hackman at the Student Evaluation Branch, 427-2948.

Chemistry 30 Diploma Examination Results
June 1990







The summary information in this report is intended to provide teachers, school administrators, students, and the general public with an overview of results from the June 1990 administration of the Chemistry 30 Diploma Examination. The information is most helpful when used in conjunction with the detailed school and jurisdiction reports that have been mailed to schools and school jurisdiction offices. The first annual provincial report containing a detailed analysis of the combined January and June results is available this fall.

DESCRIPTION OF THE EXAM

The Chemistry 30 Diploma Examination consists of three parts: a multiple-choice section of 49 questions worth 70%, a numerical-response section of seven questions worth 10%, and a written-response section of three questions worth 20%.

ACHIEVEMENT OF STANDARDS

The information reported is based on the final blended marks achieved by 8 125 students who wrote the June 1990 examination.

- 86.1% of these students achieved the acceptable standard (a final blended mark of 50% or higher).
- 21.3% of these students achieved the standard of excellence (a final blended mark of 80% or higher).

PROVINCIAL AVERAGES

- The average school-awarded mark was 68.5%.
- The average diploma exam mark was 61.8%.
- The average final blended mark, representing an equal weighting of the diploma and school marks, was 65.5%.

SUBTEST RESULTS

When analysing any detailed examination results, please bear in mind that subtest results cannot be directly compared.

Machine scored: 36.3 out of 56

Written response: 6.9 out of 14

- Course Content
  - -Chemical Energetics: 13.9 out of 22
  - -Acids and Bases: 14.4 out of 24
  - -Oxidation-Reduction: 14.8 out of 24
- Process Skills: 21.1 out of 37
  - -Multiple-choice questions 3, 4, 6, 7, 11, 12, 14, 15, 20, 22, 24, 26, 28, 29, 30, 31, 32, 33, 39, 40, 44, and 47, numerical-response questions 1, 3, 4, 5, 6, and 7, and written-response questions 2 and 3.
- Cognitive Levels
  - -Knowledge: 13.5 out of 19
  - -Comprehension and Application: 23.6 out of 39
  - -Higher Mental Activities: 6.1 out of 12

EXAMINATION BLUEPRINT

Each question on the examination is classified in two ways: according to the curricular content area being tested and according to the cognitive level demanded by the question. The examination blueprint illustrates the distribution of questions in June 1990 according to these classifications. Numbers with square brackets [ ] indicate written-response questions, those with round brackets ( ) indicate numerical-response questions, and those without brackets indicate multiple-choice questions.

Reporting Category	Questions by Cognitive Level			Examination Emphasis (%)
	Knowledge	Comprehension and Application	Higher Mental Activities	
Chemical Energetics	1, 2, 5, 6, 7, 8	3, 9, 11, 13, 15 (1), (2) [1]	4, 10, 12, 14	32
Acids and Bases	16, 17, 18, 21, 23, 27, 29	19, 20, 22, 25, 26, 32 (3), (4), (5) [2]	24, 28, 30, 31 [2]	34
Oxidation-Reduction	33, 34, 35, 41, 48, 49	36, 37, 38, 40, 43, 45, 46 (6), (7) [3]	39, 42, 44, 47 [3]	34
Examination Emphasis (%)	27	53	20	100

Note: For reporting purposes, the Higher Mental Activities component of the written-response section has been combined with the Comprehension and Application category.

RESULTS and EXAMINERS' COMMENTS

The examination has a balance of question types and difficulties and is designed so that a student capable of achieving the acceptable standard would obtain a mark of 50% or better on the examination. Students achieving the standard of excellence would obtain a mark of 80% or better on the examination. Despite the parallel structure of this examination to previous examinations, more students than expected (27.6%) failed to achieve the acceptable level. Future examinations will require students to demonstrate clarity in their thinking as well as a higher level of thinking on a broader range of goals. Students will need to achieve these learner expectations if they are to be successful on the examination. For information concerning the 1990-91 diploma examinations, please consult the 1990-91 Mathematics and Sciences bulletin.

MULTIPLE CHOICE

QUESTION	KEY	DIFFICULTY*	QUESTION	KEY	DIFFICULTY	QUESTION	KEY	DIFFICULTY
1	C	82.1	18	C	82.6	35	C	68.3
2	A	76.7	19	B	76.2	36	B	82.8
3	C	62.8	20	D	63.8	37	D	76.3
4	B	55.8	21	B	40.3	38	A	71.4
5	D	45.0	22	C	81.2	39	D	38.1
6	A	77.7	23	B	63.5	40	B	91.8
7	D	73.7	24	A	29.7	41	C	59.2
8	D	87.7	25	C	67.8	42	B	60.3
9	A	85.0	26	C	86.2	43	D	61.0
10	B	76.1	27	A	66.3	44	A	47.2
11	D	57.6	28	B	47.7	45	A	68.6
12	B	59.3	29	C	73.2	46	B	65.2
13	C	87.3	30	A	32.4	47	D	61.3
14	A	50.5	31	D	52.1	48	C	55.3
15	D	79.0	32	B	79.3	49	A	65.5
16	D	87.8	33	D	78.8			
17	D	81.2	34	A	82.8			

*Difficulty – percentage of students answering the question correctly

MULTIPLE CHOICE (continued)

The questions that follow are selected to exemplify what is required to meet the acceptable standard and the standard of excellence.

Four solutions of equal concentration were tested for conductivity, reaction to litmus, and reaction with zinc metal. The results were tabulated:

Solution	Conductivity	Litmus	Zinc
I	good	blue to red	produced $H_2(g)$
II	good	no change	no reaction
III	poor	blue to red	produced $H_2(g)$
IV	none	no change	no reaction

22. The solution that would be considered to be a solution of a weak acid is

A. I
B. II
*C. III
D. IV

Question 22 showed that most students (81.2%) correctly analysed the data and recognized the properties of a weak acid. Those students who answered incorrectly did not appear to make a common mistake, which suggests that students achieving the acceptable standard have a good knowledge of the operational definitions of acids.

Question 24 showed that 75.6% of the students recognized that the solution would be basic. Unfortunately, over half these students did not recognize that there is a ratio between solute and dissolved ions, and hence they omitted the 1:2 ratio. Consequently, fewer than one-third of the students (29.7%) correctly answered the question. This result suggests that most students, except those achieving the standard of excellence or close to the standard, have difficulty recognizing ratios other than 1:1 in acid-base chemistry.

24. The pH of 7.5×10^{-3} mol/L $Ba(OH)_2(aq)$ is

*A. 10.18
B. 9.88
C. 4.12
D. 3.82

NUMERICAL RESPONSE

Most students correctly followed the instructions for filling in the answer sheet. However, the maximum number of students who used the mathematics instructions increased 1.4%; approximately 0.2% of the students mis-bubbled the fields. Students who erred in recording correct answers did not lose marks for carelessness in this first year of implementing the numerical-response questions. However, answers that were not rounded as instructed were marked wrong. Students should be rounding and recording 14.246, for example, as 14.2, not 14.25 or 14.20. In the future, it is expected that students will correctly round off and follow the instructions for filling in the answer sheet. In general, students should not expect marks when they fail to follow instructions.

Question	Answer	Difficulty (%)
1	8.83	49.6
2	28.0	34.4
3	4.16	38.7
4	85.8	53.6
5	3.31	52.0
6	4.50	28.2
7	1.15	75.5

In a titration experiment, $K_2Cr_2O_7(aq)$ was used to determine the concentration of $Fe^{2+}(aq)$ in an acidified solution of $FeCl_2(aq)$. The following data were recorded:

Concentration of $K_2Cr_2O_7(aq)$	0.250 mol/L
Volume of $FeCl_2(aq)$	10.00 mL
Final burette reading of $K_2Cr_2O_7(aq)$	30.2 mL
Initial burette reading of $K_2Cr_2O_7(aq)$	0.2 mL

6. The concentration of $Fe^{2+}(aq)$ ions in the $FeCl_2(aq)$ solution in moles per litre, to three digits, is _____ mol/L.

The average for question 6 was 28.2% and it discriminated very well between strong and fairly strong students. The most frequent mistake (23.3%) students made was omitting the 1:6 ratio between the $Cr_2O_7^{2-}(aq)$ and the $Fe^{2+}(aq)$. Following that, the most common error (4.1%) was using a 6:3 ratio. Inverting the ratio was not a problem; only 0.3% of the students did this. This suggests that only students achieving the standard of excellence can correctly write the equation and use the appropriate ratio to solve redox problems.

The average for question 7 was 75.5%, and it discriminated between fair and weak students. Students' most common mistake (6.4%) was their adding of voltages to yield an incorrect value of 1.95 V. Another common mistake they made (5.0%) was their response of 1.55 V, which suggests that students picked this voltage from the equation that contained $X^{2+}(aq)$. These errors suggest that students achieving the acceptable standard can obtain a numerical value for the voltage that corresponds to an unknown half-reaction.

A student collected data for reactions using hydrogen and two unidentified metals labelled X(s) and Y(s).

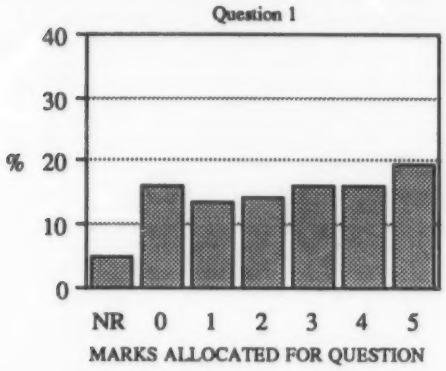
$$H_2(g) + Y^{2+}(aq) \longrightarrow 2H^+(aq) + Y(s) \qquad E^\circ_{rxn} = 0.40 \text{ V}$$

$$Y^{2+}(aq) + X(s) \longrightarrow Y(s) + X^{2+}(aq) \qquad E^\circ_{rxn} = 1.55 \text{ V}$$

7. The standard reduction potential for the reaction $X^{2+}(aq) + 2e^- \longrightarrow X(s)$ in volts, to three digits, is $-$_____ V.

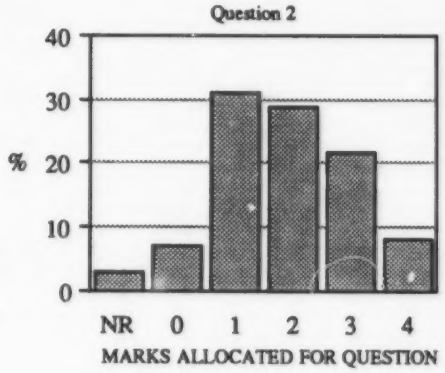
WRITTEN RESPONSE

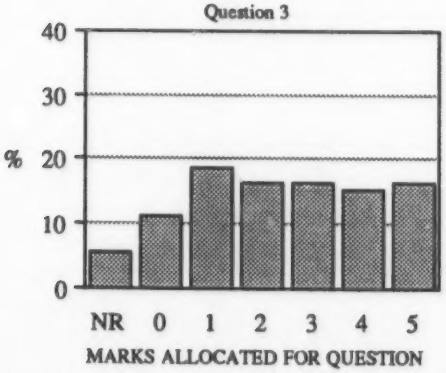
The level of achievement on the written-response section was only fair; about half the students (52.1%) achieved a mark of 7 or better out of 14. This was due to the poor performance on question 2, which was about 25% lower than field test results had indicated. Students' inability to answer this question well accounts, in part, for their failure to attain the acceptable standard.



Question 1 showed that one-third of the students could not determine what was needed to solve the question and, as a result, obtained a mark of 2 or less. This group of students failed to write a balanced chemical equation for the combustion of ethanol and failed to calculate the appropriate molar heat of combustion. Students could still obtain a passing mark if they used an incorrect value, such as the molar heat of formation of ethanol, in subsequent calculations. Generally, students who correctly wrote a balanced chemical equation were able to calculate the molar heat of combustion and were good at solving the calorimetric aspect of the problem. These students handled the algebraic manipulation of variables well. They also recognized that the reaction was exothermic and that, hence, the final temperature should be higher than it was initially. Some common errors that prevented these students from earning full marks for this question were failing to balance the oxygen in the equation, using the negative sign on the ΔH value throughout the question, and failing to distinguish the final temperature from the change in temperature. On this 5-mark question, the average mark was 2.52 for 50% of the available mark.

Question 2 was not answered as well as was expected. Almost all students identified Lynn's explanation as being incorrect. Many students, however, had difficulty explaining their reasoning. Some could not differentiate between a nuclear proton and a hydrogen ion; most focused on what was correct in Pat's explanation rather than on what was incorrect in Lynn's. In general, students answered the second part of the question well, demonstrating that they understand and are able to use the acid-base indicator chart. A large number of students correctly selected methyl red and bromocresol green as the indicators. Most of them knew that bromocresol green would display its intermediate color, confirming that the pH value is above 3.8. Common errors made in this section were that students selected methyl orange to determine the lower pH limit, and that they failed to relate the color of the indicators to the pH of the solution. Students received lower marks for lack of clarity and for incomplete explanations. On this 4-mark question, the average mark was 1.87 for 47% of the available mark.

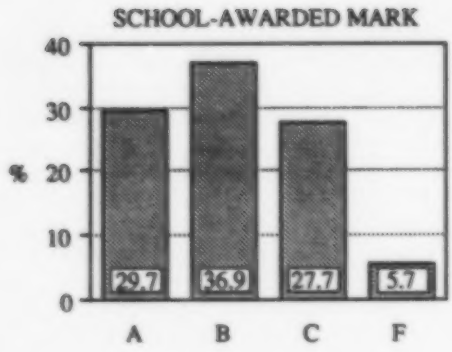


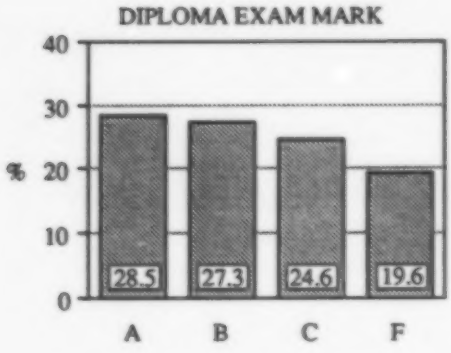


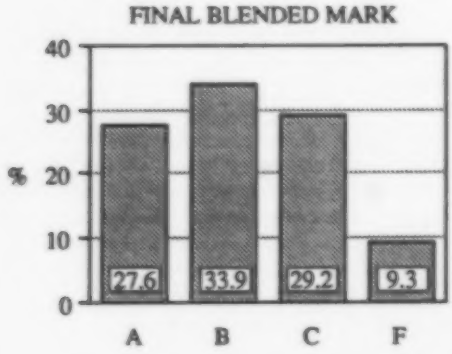
Question 3 was answered as well as was expected. A large number of students had difficulty selecting the oxidizing agent; they incorrectly selected Cl_2 or CT. Most students recognized that the reaction involved zinc and so chose it as the reducing agent. Students with the correct reactants and products did not have problems balancing the equation with states or correctly interpreting the mole ratio. However, a large number of students failed to use the mass of zinc that reacted and instead used either the initial or final mass of zinc. In general, students performed the stoichiometric process well; they paid careful attention to rounding off to the proper number of significant digits and to their use of units throughout. However, they did not pay the same attention to detail in the overall organization of their responses. In the last part of the question, most students identified the correct chemical changes, but they presented their correct answers as inferences rather than as observations. Some failed to read the question carefully and, as a result, stated what was occurring during the reaction rather than what was indicated at the completion of the reaction. Another common problem occurred when students tried to indicate the completion of the reaction by selecting and using acid-base indicators; most selected inappropriate indicators. Those students who did select an appropriate indicator and gave a correct observation received full marks for this section. On this 5-mark question, the average mark was 2.44 for 49% of the available mark.

For further information, contact Phill Campbell or Don Loerke at the Student Evaluation Branch, 427-2948.

Physics 30 Diploma Examination Results
June 1990







The summary information in this report is intended to provide teachers, school administrators, students, and the general public with an overview of results from the June 1990 administration of the Physics 30 Diploma Examination. The information is most helpful when used in conjunction with the detailed school and jurisdiction reports that have been mailed to schools and school jurisdiction offices. The first annual provincial report containing a detailed analysis of the combined January and June results is available this fall.

DESCRIPTION OF THE EXAM

The Physics 30 Diploma Examination consists of two parts: a multiple-choice section of 49 questions worth 70% and a written-response section of four questions worth 30%.

ACHIEVEMENT OF STANDARDS

The information reported is based on the final blended marks achieved by 4 768 students who wrote the June 1990 examination.

- 90.7% of these students achieved the acceptable standard (a final blended mark of 50% or higher).
- 27.6% of these students achieved the standard of excellence (a final blended mark of 80% or higher).

PROVINCIAL AVERAGES

- The average school-awarded mark was 70.3%.
- The average diploma exam mark was 66.4%.
- The average final blended mark, representing an equal weighting of the diploma and school marks, was 68.8%.

SUBTEST RESULTS

When analysing any detailed examination results, please bear in mind that subtest results cannot be directly compared.

Machine scored: 34.6 out of 49

Written response: 11.9 out of 21

- Course Content
  - Light: 11.2 out of 16
  - Electric and Magnetic Fields: 12.5 out of 19
  - Electromagnetic Radiation: 6.0 out of 10
  - Structure of Matter: 9.5 out of 14
  - Modern Physical Theories: 7.4 out of 11

- Process Skills: 22.4 out of 36
  - Multiple-choice questions 1, 3, 7, 9, 13, 17, 20, 21, 23, 26, 27, 28, 29, 30, 33, 40, 42, 45, and 48, and written-response questions 1, 2, and 4.

- Cognitive Levels
  - Knowledge: 12.0 out of 17
  - Comprehension and Application: 24.2 out of 35
  - Higher Mental Activities: 10.3 out of 18

EXAMINATION BLUEPRINT

Each question on the examination is classified in two ways: according to the curricular content area being tested and according to the cognitive level demanded by the question. The examination blueprint illustrates the distribution of questions in June 1990 according to these classifications. Numbers with square brackets [ ] indicate written-response questions, and those without brackets indicate multiple-choice questions.

Reporting Category	Questions by Cognitive Level			Examination Emphasis (%)
	Knowledge	Comprehension and Application	Higher Mental Activities	
Light	2, 6, 8, 10	1, 3, 4, 5, 7, 9, 11	[4]	23
Electric and Magnetic Fields	14, 15, 16, 19	12, 13, 18, 21, 22 [1]	17, 20, 23	27
Electromagnetic Radiation	24, 25	26, 28	27 [2]	14
Structure of Matter	31, 35, 38	30, 32, 34, 36, 37 [3]	29, 33	20
Modern Physical Theories	39, 41, 46, 47	42, 43, 44, 45, 49	40, 48	16
Examination Emphasis (%)	24	50	26	100

RESULTS and EXAMINERS' COMMENTS

The examination has a balance of question types and difficulties and is designed so that a student capable of achieving the acceptable standard would obtain a mark of 50% or better on the examination. Students achieving the standard of excellence would obtain a mark of 80% or better on the examination.

MULTIPLE CHOICE

QUESTION	KEY	DIFFICULTY*	QUESTION	KEY	DIFFICULTY	QUESTION	KEY	DIFFICULTY
1	C	77.7	18	B	75.9	35	C	69.1
2	B	76.8	19	A	73.3	36	B	63.8
3	D	69.5	20	B	61.3	37	A	78.3
4	B	74.9	21	C	60.0	38	D	80.1
5	B	79.6	22	D	85.8	39	D	47.5
6	C	88.3	23	A	77.5	40	D	68.7
7	A	85.3	24	D	73.4	41	A	70.1
8	C	62.2	25	C	87.7	42	C	80.6
9	C	83.2	26	A	74.9	43	B	84.3
10	D	61.2	27	B	69.5	44	B	77.5
11	B	62.6	28	A	66.1	45	D	73.2
12	C	73.9	29	D	69.2	46	D	67.0
13	B	65.0	30	B	58.0	47	C	57.2
14	C	63.8	31	C	71.2	48	A	64.5
15	B	87.9	32	C	76.2	49	A	49.5
16	C	59.4	33	D	54.7			
17	A	45.7	34	A	76.5			

*Difficulty – percentage of students answering the question correctly

MULTIPLE CHOICE (continued)

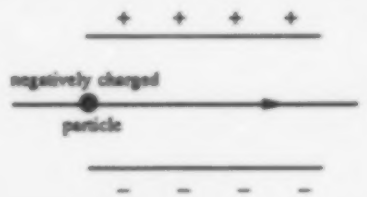
All students were expected to demonstrate a high level of competence in calculations; most met this expectation. Students achieving the standard of excellence were expected to transfer knowledge to new situations and to use methods based on major scientific generalizations. Questions 3, 11, 17, 27, 33, and 45 were designed to test students' abilities to analyse and generalize. Detailed comments on questions 18 and 33, which illustrate the varying question types and difficulty levels included in the examination, follow.

18. What will be the speed of an electron that accelerates from rest through a potential difference of 5.0×10^3 V?

A. 9.4×10^6 m/s
•B. 1.3×10^7 m/s
C. 1.8×10^{14} m/s
D. 3.3×10^{16} m/s

Question 18 required students to apply the law of the conservation of energy to a charged particle that has been accelerated by an external voltage. To perform this calculation, students had to combine two equations from the *Physics Data Booklet*. Over three-quarters of the students obtained the correct answer, including half the students whose examination scores were below 50%. Alternatives C and D each drew over 8% of the students. All students should have eliminated these two alternatives because the speeds given are faster than the speed of light in a vacuum. Even when using modern calculators, students need to check their answers to see if the answers make sense.

A Charged Particle Moving in Gravitational and Electric Fields



33. A negatively charged particle of mass 3.0×10^{-14} kg moves horizontally through a vertical electric field of intensity 6.1×10^4 N/C. The number of excess electrons on the particle is

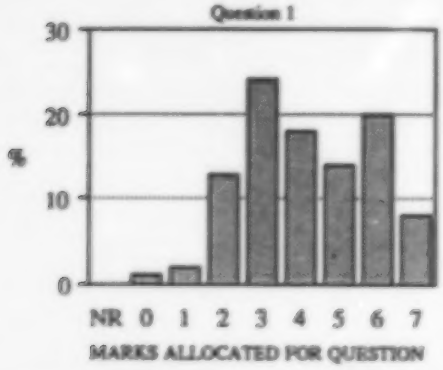
A. 0.3
B. 1
C. 3
•D. 30

Question 33 required students to recognize that horizontal motion implies a zero vertical force. Secondly, students had to equate electric force with particle weight, even though the initial data are expressed in terms of electric field and particle mass. Finally, students had to convert the charge in coulombs into the units of elementary charges. Nearly all students whose examination marks were over 80% obtained the correct answer. Most students whose examination marks were below 50% confused mass and weight; fewer than one-fifth of them obtained the correct answer.

Unlike the January 1990 examination, students performed better than they had been expected to, based on the initial field-test results.

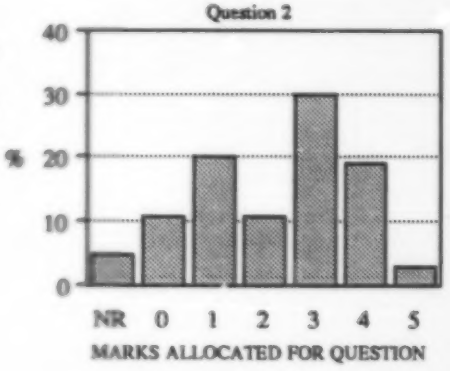
WRITTEN RESPONSE

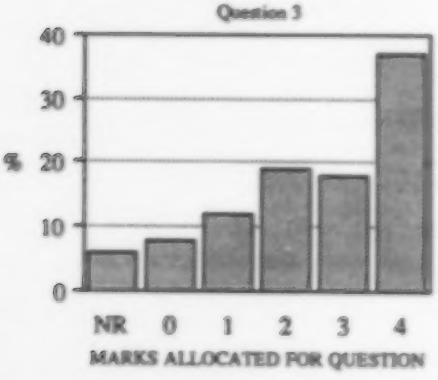
The four questions in the written-response section were chosen from four of the five content strands for physics. Students' problem-solving skills were tested most in part (c) of question 1 and in question 2. Students performing at the acceptable standard were expected to answer the first two parts of question 1 well, to obtain half marks on questions 3 and 4, and to be challenged by question 2. Students performing at the standard of excellence were expected to answer questions 3 and 4 almost perfectly and to get two-thirds or more of the marks on questions 1 and 2.



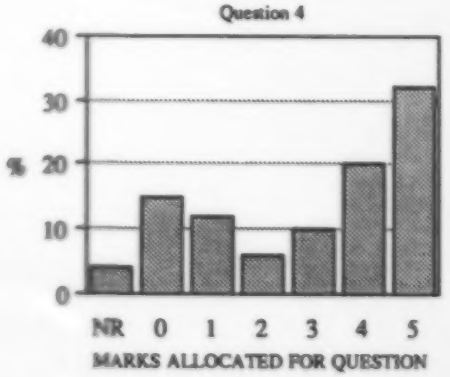
Question 1 was well answered. Most students drew the straight-line graph, many calculated the slope, and a significant proportion derived the charge q from the equation $mg = qE$. Students were expected to use the slope as the most suitable averaging procedure because the greatest statistical weight is then given to the most accurate points. Using the data table is an inferior method because, in this case, equal statistical weight is given to each point on the graph. Substituting average values for V and d in the equation $qV/d = mg$ was only accepted if students drew a straight-line graph that went exactly through the origin. On this 7-mark question, the average mark was 4.17 for 59.6% of the available mark.

Question 2 had responses that showed great variability. The relative sizes of the holes and of the microwaves were well documented, showing that students understood that the mesh was opaque to microwaves. Students, however, were unaware that light had to pass through the mesh. In estimating the harmful nature of microwaves, most students exaggerated the carcinogenic properties of microwaves, but few commented on the negative effects of microwaves on some models of heart pacemakers. The alternative designs, some of which were successful, made for interesting reading. On this 5-mark question, the average mark was 2.24 for 44.8% of the available mark.





Question 3 was well answered. Many students used unit analysis to determine the formula for the mass of gold that was deposited. About half the students used the hypothetical mass of 36.0 g. Those students who calculated an incorrect mass and then used the hypothetical mass for the second part of the question received part marks for the first part and full marks for the second part. On this 4-mark question, the average was 2.51 for 62.8% of the available mark.



Question 4 showed a great variance in student responses. Many students included clear documentation and a correct answer. A significant minority of students, however, included an angle of 71.6° to the surface and an angle of 38.0° to the normal as substitutions into Snell's Law. It was encouraging to see that three-quarters of the students knew that both straight-line propagation and refraction were essential elements to the solution. On this 5-mark question, the average mark was 2.97 for 59.4% of the available mark.

For further information, contact Phill Campbell or Jack Edwards at the Student Evaluation Branch, 427-2948.

DIPLOMA EXAMINATIONS PROGRAM
ANNUAL REPORT QUESTIONNAIRE

The Student Evaluation Branch strives to produce documents that will be useful to the educational community. The purpose of the following questionnaire is to collect your opinions about the *Annual Report*. Your opinions will be considered when the content and format of the report are reviewed before the production of the next issue.

Please take a moment to respond to the following questions. Then detach this sheet and send it to:

Mr. Michael Robinson
Assistant Director, Analytical Services and Special Cases
Student Evaluation Branch
Alberta Education
11160 Jasper Avenue
Edmonton, Alberta T5K 0L2

USE OF THE REPORT

1. **Please check the box beside the statement that applies to you.**

   My present role is primarily that of

   - **teacher** ☐ 1
   - **school administrator** ☐ 2
   - **central office administrator** ☐ 3
   - **school board member** ☐ 4
   - **other (please specify)** _____

2. **Please check the box beside the statement that applies to you.**

   I read the report, but I DID NOT use it to interpret the results attained by my students. ☐ 5

   I read the report, and I used it to interpret the results attained by the students in

   - **my classroon** ☐ 6
   - **my school** ☐ 7
   - **my jurisdiction** ☐ 8

3. **Please respond to the following statement if you have checked boxes 6, 7, or 8 above.**

   I have made use of the results to alter the educational program offered in

   - **my classroon** ☐ 9
   - **my school** ☐ 10
   - **my jurisdiction** ☐ 11

Continued

CONTENT OF THE REPORT

1. Please judge the usefulness of the information included in the various sections of the report by checking the appropriate boxes below.

	Very Useful	Adequate for Use	Of Some Use	Of No Use
Section 2: Summary of Results	☐ 12	☐ 13	☐ 14	☐ 15
Section 3: Student Results by Gender	☐ 16	☐ 17	☐ 18	☐ 19
Section 4: Results for Population Subgroups	☐ 20	☐ 21	☐ 22	☐ 23
Section 5: Special Study	☐ 24	☐ 25	☐ 26	☐ 27
Section 6: Examiners' Summary Statements	☐ 28	☐ 29	☐ 30	☐ 31

2. If you wish, please comment further on the content of the report in the space below.

FORMAT OF THE REPORT

1. Please judge the usefulness of the report's format by checking the appropriate boxes below.

	Very Useful	Adequate for Use	Of Some Use	Of No Use
Organization into Separate Sections	☐ 32	☐ 33	☐ 34	☐ 35
Double-Column Presentation of Text	☐ 36	☐ 37	☐ 38	☐ 39
Presentation of Figures	☐ 40	☐ 41	☐ 42	☐ 43
Presentation of Tables	☐ 44	☐ 45	☐ 46	☐ 47
Blending of Information in Text, Figures and Tables	☐ 48	☐ 49	☐ 50	☐ 51

2. If you wish, please comment further on the format of the report in the space below.